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## DIPTERA BRASILIANA,

Ab H. H. SMITH Collecta.

## Part I—STRATIOMYIDÆ, SYRPHIDÆ.

BY S. W. WILLISTON, M. D.

More than a year ago Mr. Herbert H. Smith, who is well known to zoologists for his writings on Brazil, placed in my hand for study a collection of Diptera made by him during the past few years in Southern Brazil. The collection is one of great importance, both on account of its size and excellent preservation. It is, I believe, the largest local collection that has ever been made, or at least studied, of South American Diptera. The labor in its determination is necessarily very great, and often tedious; a very large part of the species have never been recognized since Wiedemann's and Macquart's descriptions a half century ago, and with the exception of Philippi's, Schiner's and Lynch's publications, but little has been done since that time. I have endeavored faithfully to identify such of the species as have been previously described, but I trust that if I have occasionally made a synonym that I will be pardoned. Indeed, my chief desire has been to study and describe the species so that they will again be recognizable, and I do not by any means deem it necessary to give a new name to every species that appears new. In many genera good descriptions cannot be made without comparison with all, or nearly all the existing species of the fauna.

Not a few of the species appear to be of wide distribution, a fact that renders their recognition often more doubtful, and it is only by the study and comparisons of abundant material from local faunæ that the real facts in such cases will be determined. It may be of interest to note that most of the species described by Schiner, with the locality given simply as South American, seem to be at home in Southern Brazil.

Chapada is a small village in the vicinity of Cuyabá.

## STRATIOMYIDÆ.

**Hylorus** Philippi, Verh. zool.-bot. Gesellsch. xv. 728, 1868.

I have no specimen of this genus from South America, but one from New South Wales, of an undetermined species, agrees so fully with the description and figure given by Philippi that I have no hesitation in referring it to the same genus. *Metoponia* is certainly closely allied, indeed, to all appearances, quite the same. *Xenomorpho australis* Macq., if the figure is correct, belongs also in the same genus. The genus is closely allied to *Chiomyza*, yet sufficiently distinct in the furcation of the third vein. Bigot (Ann. Soc. Ent. Fr. 1879, 185) is wrong in uniting them, and it is probable that his *C. vicina*, if it is really from Australia, is a member of this genus, which I think should be known as *Metoponia*.

1. **Chiomyza** spp.

I have, of this genus, two males from Chapada, (Nov.) and four males and two females from Rio de Janeiro (April). There are certainly two, and perhaps three, species among them, but the existing descriptions do not enable me to decide which they are. The two specimens from Chapada differ from the other males in having a smaller head and more slender antennæ, which are distinctly constricted beyond the basal segment of the third joint. In all the other specimens the third joint tapers from base to tip, which is more acute. In one (*a*) of the two, however, the head is almost cordate in front view, the eyes are more closely contiguous, and the ocellar tubercle is more prominent; the mesonotum is more strongly gibbose in front, the hind tibiæ less slender and darker colored, and the second basal cell is not petiolate as in the other (*b*), though this last probably means little. Both measure about 6-7 mm. The legs in both are yellow, a little brownish in specimen *a*, especially on the tarsi. The males (*c*) from Rio de Janeiro, of about the same size, agree better among themselves, differing only in the depth of color on thorax and abdomen; the legs are yellow, in some the tarsi brownish, the antennæ are red, with the tip brownish; they may be *C. ochracea* Wied.

The two females are distinctly different from each other. In the one (*d*) the color is much darker than in the other (*e*), with the antennæ nearly black, the legs brown, the head is smaller, the front a little narrower, the ocellar tubercle much less prominent, the hind

tibiæ straighter and less dilated, etc. The species are evidently all closely allied, and confusion in their discrimination will prevail till some better characters are applied than have been hitherto.

2. **Beris bellula** n. sp.

♂.—Length 7 mm. Mesonotum bronze black, scutellum green; antennæ short; wings blackish. Antennæ black, third joint red at the base, a little longer than the first two joints together. Face and frontal triangle silvery pruinose, the latter just above base of antennæ blackish. Proboscis yellow, tip of palpi black. Eyes thinly pilose. Mesonotum dark bronze, with dark fulvous, anteriorly blackish, pile. Scutellum bright shining metallic green, with six strong, nearly equal black spines. Pleuræ shining black, with white pile. Abdomen brownish black, along the middle broadly luteous (perhaps variable); venter mostly yellow. Legs yellow; a ring near the tip of the four front femora and the distal four tarsal joints of the same pairs, brownish; tip of hind femora broadly and the distal four joints of hind tarsi blackish. Wings blackish, the stigma but little darker.

One specimen, Rio de Janeiro, August. Resembles *B. mexicana* Bell., but differs in color of face, thorax, wings, legs, etc., and in the non-dilated hind metatarsi.

3. **Beris pulchella** n. sp.

♂.—Length 6 mm. Mesonotum and scutellum bright shining green; antennæ elongate; wings blackish. Antennæ as long as the head, yellow or brownish yellow, the third joint blackish toward the tip. Face and front silvery pruinose, a blackish spot above the base of the antennæ. Tip of palpi black. Eyes thinly pilose. Mesonotum and scutellum bright metallic green, the former often with blue or violet reflections, pile fulvous, blackish in front. Pleuræ shining, greenish black, with white pile. Scutellum with six moderately strong black spines. Abdomen yellowish red in front and along the sides, the terminal segments black, on the middle of the disc brownish. Coxæ and femora reddish yellow; tibiæ wholly, front tarsi, tip of four posterior metatarsi, and the remaining joints black, the four posterior metatarsi otherwise nearly white. Wings blackish or brownish; the stigma only a little darker.

♀.—Front steel-blue. Abdomen brown or blackish throughout. Legs yellow, a small brownish ring on distal part of hind femora, and the distal half of hind tibiæ and all the tarsi except the metatarsi, black or brown.

Four males and one female, Chapada, November. The female specimen is not in good preservation.

4. **Hermetia illucens** Linné, Wiedemann, etc. [For the synonymy see Osten Sacken or Lynch, Catalogues].

Six specimens from Rio de Janeiro agree well in color and size with North American ones. As in those, only the hind tibiæ are yellow at the base. I would call attention to a sexual difference in the antennæ, which seems to occur frequently in this genus, namely,

the greater dilatation of the third antennal joint in the female. The same feature occurs in *H. Comstockii* and *H. apicalis* at least. In *illucens* it is also more reddish in color, or even wholly red. In all my female specimens of this species, both North and South American, the yellow spots of the second abdominal segment are much smaller in extent, not reaching the hind margin as in the male. Three specimens from Chapada, both male and female, have the posterior part of the abdomen deep red, but I can discover no other differences.

- 5 ***Hermetia albitarsis*** Fabricius, Syst. Antl. 63; Wiedemann, Auss. Ins. ii, 25; Macquart, Dipt. Exot. Suppl. i, 49; Schiner, Novara Exped. 70.—S. America [Wied.], Columbia [Schiner, Macquart].

? *H. bimaculata* Macquart, Hist. Nat. Dipt. i.

? *H. sermaculata* Macquart, Hist. Nat. Dipt. i.

*H. planifrons* Macquart, Dipt. Exot. Suppl. i, 50.—Yucatan.

Two specimens, Chapada. Length 11 mm. The flat, bright silvery front with a slender, median, black strip, is characteristic of this species. In one of my specimens the silvery tomentum reaches nearly to the ocelli, in the other, not two-thirds of the distance. In the latter specimen the base of the third antennal joint is reddish, the base of the tibiæ is not at all yellow, and the last two joints of all the tarsi are darker, on the hind pair blackish. In both, the ground color of the front has four small yellow spots near the orbit, two below the ocelli and two above the base of the antennæ. The eyes are pilose, and are marked, as in the two following, with an irregular four-sided purple stripe on a green ground.

6. ***Hermetia apicalis*** Wiedemann, Auss. Ins. ii, 25; Schiner, Novara Exped. 70.—S. America.

Two specimens, from Rio de Janeiro. Wiedemann's description applies well. The species resembles the foregoing, but the front is not plane and the wings and abdominal spots are different. The front has four small yellow spots, as in the foregoing, and the eyes are likewise pilose and similarly marked. The abdominal spots are of the same size in both sexes; in my male specimen yellow; in the other red. The third antennal joint is dilated in the female. *H. varipennis* Bigot must be a closely allied species.

7. ***Hermetia ceriogaster*** n. sp.

♂ ♀.—Length 14–16 mm. Black, abdomen coarctate at base, antennæ long, tarsi white, wings brown, eyes pilose. Antennæ black, slender, the lamella nearly twice as long as the preceding together, the third joint not dilated. Front black, shining, the median protuberance strong; pile black, not silvery

pubescent. Face strongly projecting downwards; black, with a dirty white stripe in the middle, and a semi-oval, light yellow spot on each side below the antennæ; pile chiefly black. Eyes pilose. Mesonotum black, moderately shining, not distinctly vittate, on the posterior part broadly, but not conspicuously, yellow pubescent or tomentose. Abdomen strongly coarctate at base; black, with a purplish or bluish reflection, black pubescent; second segment more brownish, on its anterior, most coarctate, portion, two moderately large, oval, white translucent spots, on the venter the segment wholly so. Legs deep black; all the tarsi white, with the last two joints infuscated or blackish. Wings dark; along the anterior part with a reddish cast, broadly blackish at the end and behind, except that the anal cell chiefly, and a large part of the anal angle, are hyaline.

My two specimens seem to be male and female; in the one the base is less long petiolate than, but the apex rounded and with an appendage as, in *H. coarctata* Macq., as figured in his Dipt. Exot. Suppl. i, pl. v, fig. 4; in the other the tip is broader and the genitalia are concealed. From *H. coarctata* there are abundant differences. The eyes have the same pattern of markings as in the two preceding species and consisting of a purple stripe of quadrilateral figure, parallel to the inner, and outer upper, margins, with the other two sides deeply concave inwardly. This represents a fourth type of coloration in the genus, the other three of which have been described by Osten Sacken. As a warning against the attempt to base any divisional generic characters on the eye pilosity in *Hermetia*, I will mention that *H. lativentris* Bell. (or at least a closely allied species, see Can. Entom. xvii, 125) has the eye markings quite as Osten Sacken describes them in his closely allied *H. relictæ*, though the eyes are not bare, but distinctly pilose.

#### 8. *Chrysochlora* spp.

The South American species of *Chrysochlora*, or rather the species so named by authors, for the type, *C. amethystina*, from the Isle of France is hardly congeneric, are very difficult to discriminate and describe. They resemble each other very much and the coloration is variable; the descriptions hitherto published, based almost exclusively upon coloring, are, almost without exception, worthless. I have twelve specimens from Chapada and Rio de Janeiro, and scarcely any two are alike. The differences that I discover I endeavor to show in the following table:

a.—Front and face narrow, of equal width, front nearly uniformly convex in profile.

b.—Front and face wholly yellow.

c.—Antennæ short, but little longer than the face; face and front with long, blackish pile; wings not conspicuously spotted. Two specimens, Rio.

cc.—Antennæ elongate, about half the length of the front; front and face not markedly pilose.

d.—Pleuræ and pectus wholly yellow; outer end of hind femora brown. One specimen, Rio.

dd.—Pleuræ with a black spot, pectus yellow; hind femora wholly reddish yellow. One specimen, Rio.

ddd.—Pleuræ with large black spot, pectus broadly black. Three specimens, Rio.

bb.—Front with a brown stripe, otherwise like *ddd*. One specimen, Rio.

aa.—Face rather broad above, the sides gently divergent to oral margin; front distinctly concave on lower two-thirds, and with a broad black stripe not reaching the antennæ; median dorsal stripe deep black to prothorax; wings broader, the stigmatic and distal infuscations more pronounced, and all the veins on the posterior border clouded. Four specimens, Chapada.

Accepting Macquart's determination, we may call the short antennæ specimen *C. vespertilio*, and the specimens from Chapada, with the frontal stripe, and the frontal gibbosity above, *C. castanea* Macquart, but these are only guesses. I have seen specimens very closely allied, from Tehuantepec, and Bigot has described also a species that cannot be distinguished, from the West Indies. It is probable that the species have a wide distribution. To name new species in such genera, without the study of considerable material, or at least without pointing out differences from the previously described ones, is highly reprehensible.

9. **Cacosis nigra** Wiedemann, Auss. Ins. ii, 28 (*Sargus*); Walker, Dipt. Saund. pl. iii, fig. 1; Schiner, Novara Exped. 67.—Brazil.

One specimen, Rio de Janeiro, November. Wiedemann's description applies excellently well, except as corrected by Schiner.

10. **Ptecticus affinis** Schiner, Novara Exped. 65.—S. America.

Five specimens, Chapada, November, December. The fifth segment has a narrow, black, or blackish transverse spot, and I see no transverse "Bändchen" on the front; otherwise the specimens agree with the description.

11. **Sargus thoracicus** Macquart, Hist. Nat. Dipt. i, 260.—S. America.

One specimen, Chapada. This specimen I should have referred to *S. concinnus* O. S., described from a male specimen from Mexico and

a female from Brazil, except for the statement appended to his description that the eyes of his male specimen are not contiguous; in my specimen they are broadly and closely contiguous. There are, however, some other differences from the description. There is not the slightest trace of any yellow hind margin to the 3-6 abdominal segments; the second segment is wholly pale yellow, except a narrow, equal lateral margin, and a slender median brown stripe, and the first segment is only a little yellow in the middle. Nevertheless, the species must be very closely allied, and, if *S. concinnus* occurs in Brazil, there may be a question as to which of the two is the real *thoracicus* of Macquart.

12. **Sargus coarctatus** Macquart, Dipt. Exot. i, 1, 263, pl. xxv, fig. 2.—Brazil, Chili.

Two specimens from Corumbá (May), and Rio Parana, near Bella Vista (Dec.), both females, agree fairly well with the description. The wings are only lightly grayish, not brownish. Only the hind legs are black, with the metatarsi (except the narrow tip) white; a small yellow ring and the narrow base of the tibiæ yellow. I can find no other description that will apply well; *S. Sallei* Bell., seems the nearest, though the tarsi are different, and, if I understand the description rightly, the species is not a *Sargus*. However, as regards the related species, compare Osten Sacken, Biol. Centr.-Americana, Diptera, p. 23.

13. **Merosargus gracilis** n. sp.

♀.—Length 6 mm. Front broad, with a small median tubercle, and two white spots below; mesonotum and scutellum metallic blue; abdomen blackish brown. Front broad, metallic blue, in the middle with a small tubercle; below, the usual gibbosity well pronounced, the middle of which is brownish, separating two large white spots. Antennæ brownish or luteous yellow, the third joint lighter; arista black, considerably thickened and hairy at base. Mesonotum and scutellum bright metallic blue, with purplish reflections; a slender white line from the humeri to base of wings. Pleuræ black, with a yellowish spot below the wings. Abdomen blackish or reddish brown, with purplish reflections. Front coxæ and legs yellow; middle legs yellow with brownish on the outer part of femora and inner part of tibiæ; hind legs blackish brown, the immediate base of femora, the base of the tibiæ, and the three basal joints of the tarsi light yellow. Wings only lightly tinged with gray; second vein as in the following.

One specimen, Chapada. The species is closely allied, evidently, with *M. bituberculatus* Schiner, but the difference in the coloration of the thorax and the size (13 mm.), will readily separate them.



**14. *Merosargus festiva* n. sp.**

♂ ♀.—Length 7 mm. Front with two white spots below; mesonotum black, red on the sides; pleuræ yellow; hind tibiæ brown. Front black, shining, of equal width in both sexes; above base of antennæ lightly swollen, with a small white spot on each side near the orbit. Antennæ reddish yellow, inserted on yellow ground; third joint subquadrate; arista black, moderately swollen and pubescent at base. Face on lower part blackish. Mesonotum black, but little shining, thinly golden pubescent, the sides and front red. Pleuræ yellow, more reddish above; metanotum shining black; scutellum black. Abdomen black, with a slight purplish or bluish lustre; first segment and the small contiguous angles of all the segments yellow; in the male specimen the hind margin of the second and third segments are rather broadly red in the middle; in the other the third only is narrowly red behind. Legs yellow; the last three joints of all the tarsi are brownish or brown, and the hind tibiæ brown, except the immediate tip; in the male the hind tibiæ strongly bent near the middle. Wings tinged with brownish, the stigma brown; the second vein arises from near the cross-vein.

Two specimens, Rio de Janeiro, December. The abdomen increases gradually in width to near the tip.

**15. *Dicranophora astuta* n. sp.**

♀ ♂.—Length 8 mm. Yellow [or light green?]; a black spot on the front, and thorax with black spots and stripes; legs reddish and brownish, base of hind tarsi white; scutellar spines small; legs simple. Head wholly yellow, except a black spot in the middle of the front, and the middle part of the occiput. Mesonotum black, not shining; two slender yellow stripes, reaching from a dilatation contiguous with the yellow humeri nearly to scutellum, a triangular spot in front of the suture at the side, and another, larger, triangular spot on the post-alar callosities, likewise yellow. Pleuræ yellow; two spots below the wings, an vertical spot on the mesopleuræ and a smaller one in front, black. Pectus with two black spots or stripes between the front and middle coxæ, separated by a yellow space; metanotum black, the yellow sides with a tubercular projection. Scutellum yellow; the process nearly vertical (about as long as the body of the scutellum itself), reddish brown; spines small. Abdomen red, with a yellow margin, the first segment yellow and a small triangular, posterior, median, yellow spot on the second and third segments. Legs without projections in the female; in the male the middle femora with a four or five toothed process below at the basal third, the middle tibiæ straight and simple. Femora reddish yellow; tarsi red or brownish red; front tarsi black or dark brown, metatarsi and base of second joint of four posterior tarsi yellowish white, the remaining joints brown. Wings nearly hyaline.

I have endeavored to identify this species with *D. picta* Macq. (Hist. Nat. Dipt. i, 255; Dipt. Exot. i, 1, 196, pl. xxiv, fig. 1), but the very unsatisfactory and incomplete description shows such positive differences that the identity seems wholly improbable. I would call attention to the large spot in front of the suture, yellow scutellum, red abdomen, middle tibiæ, white metatarsi, etc., as either different from, or wholly unnoticed in his descriptions.

16. **Dicranophora affinis** n. sp.

♀.—Length 8 mm. Chiefly black; scutellar process not longer than the body of scutellum, the spines long, femoral projections confined to the outer end of the middle pair. Antennæ yellow; face nearly white; front black, shining, a slender yellow margin on each side, interrupted near the middle; below the middle a transverse depression. Mesonotum black, not at all shining; two slender stripes, abbreviated behind, reaching from a spot on the humeri and a small spot on the post-alar callosities green. Scutellum green, its process and spines red; the spines about as long as the entire scutellum. Pleuræ black, a slender vertical strip behind the prothorax, another, broader, near the mesopleural suture running into a large spot on the sternopleuræ; a spot on the side of metanotum, in which there is a tubercular projection, and one below it on the metasternum, green. Abdomen black; first segment with a subquadrate spot, which has a sharp anterior lateral projection, second segment with a small semi-oval spot behind, the third and fourth with the lateral margin, and the fifth at the tip with an oval spot, green. Coxæ pale yellow, femora yellowish red, yellowish at base; front tibiæ and tarsi black, hind tibiæ brownish red, four hind tarsi white, with the last two joints black; middle femora on the outer half below beveled, and near the middle of the straight beveling with about three small tubercles or teeth. Wings nearly hyaline, veins in front yellowish, stigma small, brownish.

One specimen, Rio de Janeiro. This species is related to *D. furcifera* Auss. Zw. Ins. ii, 38 (*Sargus*), pl. vii, fig. 5, but differs in the length of the scutellar process, the markings of front and abdomen, and, according to Macquart, Dipt. Exot. i, 1, 196, the position of the tubercles of the middle femora.

17. **Histiodroma inermis** Wiedemann, Auss. Zw. Ins. ii, 31 (*Sargus*), pl. vii, fig. 7; Schiner, Nov. Exped. 70.

One specimen, Rio de Janeiro. The description applies well.

18. **Rhaphiocera armata** Wiedemann, Auss. Zw. Ins. i, 1; ii, 29 (*Sargus*); Macquart, Dipt. Exot. i, 1, pl. xxiv, fig. 2; Schiner, Novara Exped. 70.

Ten specimens from Chapada. Schiner's remarks apply to these specimens, except of the posterior orbits, which have a spot above as Wiedemann described them; the spots, however, are variable in size.

19. **Hoplites hortulanus** Wiedemann, Auss. Zw. Ins. ii (*Sargus*); Schiner, Novara Exped. 70.

Five specimens, Rio de Janeiro. The genus is very doubtfully distinct from *Rhaphiocera*.

20. **Chrysonotus analis** n. sp.

♂.—Length 11 mm. Reddish yellow; front, tip of abdomen, hind tibiæ and tarsi, deep black. In habitus, *Ptecticus*-like, but the second antennal joint not prolonged and neuration different. Vertical triangle shining black; eyes nearly

contiguous above the large light yellow supra-antennal gibbosity. Antennæ brownish red, the third joint transversely suboval; arista scarcely at all thickened at base. Mesonotum more reddish than elsewhere, shining; the remainder of the body nearly uniform reddish yellow, except the larger part of the fourth abdominal segment, and the fifth and sixth wholly deep shining black, the distal end of hind femora, the hind tibiæ, and hind tarsi wholly deep opaque black. Hind femora rather stout. Wings hyaline; from beyond the discal cell very distinctly tinged with blackish; stigma elongate, brown; origin of second vein remote from small cross-vein.

One specimen, Chapada. Notwithstanding the stoutness of the femora, I do not place this species under *Merosargus*. The arista shows scarcely any thickening, and the second vein of the wing is much more remote from the cross-vein than is found either in *Merosargus* or *Plecticus*.

**21. *Euryneura nasica* n. sp.**

♂.—Length 4 mm. Black; face conically produced downward; antennæ slender; wings brown, with a whitish cross-band bent outwards in the middle. Face and frontal triangle black, white pubescent. Antennæ not stout, brownish yellow, the style slender, white. Face conically produced downward, longer than the frontal triangle. Mesonotum and scutellum black, covered with fine golden tomentum; margin of scutellum yellowish red, the spines long, yellow, with black tip. Pleuræ with silvery white pubescence or pile. Abdomen elongate oval, flattened, wholly black. Wings brown, the immediate base hyaline; a conspicuous white cross-band runs from the front margin just beyond the second vein to the posterior margin at the tip of the fourth posterior cell, in its middle portion strongly bent outward, V-shaped. The wings are more slender, the second vein and the anterior branch of the third vein more oblique than in the following species. Legs yellow, with the markings similar in pattern to those of the following species, the middle legs being but slightly infuscated, the front tibiæ and tarsi brown.

One specimen, Chapada.

**22. *Euryneura elegans* n. sp.**

♀.—Length 4 mm. Black; front, thorax and margin of abdomen light golden tomentose; scutellar spines small; wings variegated. Black; front opaque, sparsely, nearly uniformly golden tomentose, on the lower orbital margin with a narrow silvery border. Face very short, not produced, silvery pubescent. Antennæ black, the third joint with a reddish cast, in length only a little more than twice its width. Thorax covered with fine golden tomentum, which on the sides is arranged to form indefinite slender stripes; mesonotum with two slender bare stripes, nearly contiguous in front, thence gradually diverging to end near the spines of the scutellum. Abdomen broad, flat, its margin rather broadly, nearly silvery whitish, tomentose. Front femora, at the base below, broadly red; middle and hind femora reddish yellow, black at the tip above; front tibiæ and tarsi wholly black; middle and hind tibiæ black, with a median yellow ring; middle and hind tarsi yellow, with the last two or three joints black. The whitish cross-band of the wings begins at the front border, behind the second

vein and goes nearly straight to the tip of the fourth posterior cell; beyond the band the wing is clouded with brown, with a small, darker cloud on the anterior branch of the third vein; with the exception of a cloud on the sixth vein and the posterior part of the anal angle, the basal portion of the wing is hyaline; between this basal hyaline portion and the cross-band the wing is broadly clouded, especially in front; in the stigma there is a large yellow spot; in the fifth posterior a white spot, and another, elongate one in the outer part of the first basal and in the discal cells.

This species is closely allied to *E. fascipennis* Wied., but the description, as completed by Schiner, shows such differences that the species is surely not the same.

23. ***Promerisana nasuta*** Macquart, Dipt. Exot. Suppl. iv, 47, pl. iii, fig. 4 (*Odontomyia*).

One male and two female specimens agree so well with Macquart's description and figures that I have no hesitation in referring them to his species, though described from Chili. The third joint of the antennæ is longer and more slender, the first joint less dilated than he figures them; the dorsum of the female abdomen, also, has not three, but four green stripes, separated by three brown ones.

The structural characters, as given by Walker, of his genus *Promerisana* agree so well with those of these specimens that there can be scarcely a doubt of their correct location here, though neither of the species that I know can be identified with the type. The genus differs from *Odontomyia*, more especially, only in the structure of the head and the antennæ, but this I believe is sufficient, Gerstaecker to the contrary, notwithstanding. In *P. nasuta* the abdomen is longer and flatter than is usual in species of *Odontomyia*. The peculiar structure of the head is sufficiently well shown in Macquart's figures. *P. vittata* Walker, seems, from the description, to have a more dilated first antennal joint, but this dilatation is not of generic value, as is evidenced by the following new species.

The tendency to facial or frontal projections seems to be great in the South American Stratiomyinæ; besides *Rhingiopsis*, *Stratiomys conica* Wied., *Odontomyia fasciata* Macq., *O. heteroneura* Macq., *O. pachycephala* Schiner, and *O. pachycephs* Bigot,—all apparently have a facial or frontal projection of one kind or another.

24. ***Promerisana cylindricornis*** n. sp.

♂.—Length 12 mm. Black; abdomen with four yellow spots; face convex below antennæ; first joint of antennæ cylindrical. Facial projection strongly convex below insertion of antennæ, less conical than in *P. nasuta*, the lower border more nearly parallel with the upper, the whole projection shining black, the

oral margin, the cheeks, and the posterior orbits green. First joint of antennæ three or four times as long as the short second joint, cylindrical, red, with black hair; third joint black, long, slender, sulcate, the terminal [fifth?] not differentiated. Mesonotum black, with yellow pile, the post-alar callosities and broad margin of scutellum yellow [or green]. Pleuræ with a large, arcuated, yellow spot in front, and several confluent ones behind below. Spines of scutellum small, approximate. Abdomen flattened, opaque black; the second and third segments each with a yellow spot on each side behind, not reaching the third of the way across; narrow margin of the shining fifth segment yellow. Legs brownish black. Wings uniformly and lightly tinged with brownish; veins approximate anteriorly, the minuti anterior branch of third vein present.

One specimen, Chapada. Another male specimen with this, possibly of the same species, has the facial convexity a little less strong, red or green on the under part; two slender vittulæ on the mesonotum and the lateral margin of the same, yellow or green. The pleuræ are almost wholly light green, the pectus black. The abdomen has the first pair of spots much larger and convex anteriorly, the second pair obscure, the abdomen more reddish behind. The legs are brownish red, not brownish black.

25. **Melanochroa dubia** Roeder, Entom. Nachr. xii, 140.—Brazil.

A single specimen from Rio de Janeiro agrees well with Roeder's description, except that the distal half or two-fifths of the middle tibiæ are yellow. The legs are marked precisely as they are in *Myxosargus fasciatus* Brauer (or a species that I identify as such from North Carolina), that is, deep black, except the distal half of the middle tibiæ and the first two joints of all the tarsi. The non-contiguity of the male eyes and the aristiform termination of the antennæ are the only generic differences between these two species, which otherwise resemble each other very much. The prolongation of the face downwards in *Myxosargus* is hardly of generic value, as precisely the same difference occurs between the two related species of *Euryneura* described above.

26. **Myxosargus Braueri** n. sp.

♀.—Length 6 mm. Quite like *M. fasciatus* Brauer, except that the front has a single, median, rather strong tubercle, the distal margin of the scutellum is yellowish white and the legs are much more yellow, as follows: femora, except the tip, black; tibiæ, except a median brown or brownish ring, yellow; tarsi yellow, with the distal two or three joints brownish.

This species is a very interesting addition. The structure throughout, except, perhaps, the posterior orbits, as well as the coloration of head, thorax, abdomen and wings, agrees fully with a male of *M. fasciatus* Brauer, from North Carolina. Brauer describes the poste-

rior orbits as somewhat swollen. In my male specimen they are but very little so. In this female the posterior orbits are peculiarly enlarged and thinned, so as to fit over the front margin of the thorax.

Altogether, this species, a true *Myxosargus*, and though closely allied to the type species, is, I believe, entitled to a name, which I choose in honor of the talented author of the genus. The wings have the same pattern of coloration as in *fasciatus*, but the markings are darker than in my specimen of that species. Three specimens, Chapada.

27. **Chordonota nigra** n. sp.

♂.—Length  $5\frac{1}{2}$  mm. Black; antennæ red, tarsi luteous yellow; wings subhyaline, stigma pale yellow. Eyes pilose, broadly contiguous, on upper half the facets enlarged, the area sharply distinguished from that of the lower facets. Frontal triangle very small, white pubescent, as is also the upper part of the face. Antennæ deep red, the extreme tip only brownish. Mesonotum shining, with two remote, in the middle obsolete or wanting, white pubescent stripes, appearing (in my specimen at least) as four spots, two of which are situated on the front margin, the others in front of the scutellum. Scutellum with longer black pile. Abdomen flat, nearly circular in outline, but little shining; third and fourth segments on the anterior angles with a silvery pubescent spot; on the fifth wholly so pubescent, except in the middle. Legs black, tarsi luteous yellow.

One specimen, Chapada. The eyes occupy nearly all the head; there is no orbital margin behind visible from the side.

28. **Rhingiopsis tau** Roeder, Ent. Nachr. xii, 138.

A female specimen from Rio de Janeiro (October) agrees excellently well with the author's description of this species. The genus is a good one, and quite distinct from *Promerisana* Walker.

29. **Rhingiopsis rostrata** Wiedemann, Auss. Ins. ii, 68 (*Stratiomys*); Macquart, Dipt. i, 249; Dipt. Exot. i, 1, 186, pl. xxii, figs. 4a 4b (*Odontomyia*).—Brazil.

A male specimen from Chapada I refer to this species, as it agrees well with Wiedemann's description of the female, the only differences being sexual. Macquart's figure, though somewhat of a caricature, will serve to show the general structure of the head. The species agree closely, and, had I not recognized the species in *R. rostrata* Wied., I should have, hesitatingly, referred my male specimen to the female of *R. tau*. As, however, Wiedemann's female agrees quite in the abdominal markings with my male specimen (and Macquart's also), I think there can be no question of the distinctness of the species, the more so, as aside from the very distinct abdominal markings, the scutellum of *R. tau* is wholly black, with stouter black

spines, which have a distinctly more upward curvature. The antennæ are not as Macquart figures them, but quite as Roeder describes them, and quite alike in both species. Gerstaecker's specimens seem to be of a different species.

30. **Stratiomyia mutabilis** Fabricius, Ent. Syst. iv, 266; Syst. Antl. 81; Wiedemann, Auss. Ins. ii, 63, pl. iv, fig. 6; Perty, Delectus, etc., 184, pl. xxxvi, fig. 14; Walker, List etc., v, 42, 61; Gerstaecker, Linn. Ent. xi, 321; Bellardi, Saggio, etc., i, 30; Schiner, Novara Exped. 61; Osten Sacken, Biol. Centr.-Amer. 37.—Mexico, Central America, Brazil.

*Stratiomys fasciata* Fabricius, Ent. Syst. iv, 266; Syst. Antl. 81 (male).

*Acrochæta Aleus* Walker, List, etc., iii, 526; v, 41 (*Stratiomys*).

*Stratiomys subalba* Walker, List, etc., v, 41, 43.

? *Stratiomys subalba* (Walker) Bellardi, Saggio, etc., i, 31; Osten Sacken, Biol. Centr.-Amer. 37.

Three female and one male specimen from Corumbá, collected in May, and as many of each sex from Chapada. The females from Corumbá all agree in having a narrow stripe on the hind margin of the third segment and an equal band, somewhat differing in width on the fourth. In those from Chapada that on the third is wanting, or feebly indicated near the sides, and the one on the fourth is broader. In the male from Corumbá the wings are marked as in all the females and the scutellum is margined with yellow. The male from Chapada, however, has the general color deeper black, the scutellum is wholly black, and the wings are almost uniformly dark brown in front, distinctly darker than in the others. This male I certainly believe is of the same species, and I feel equally confident that it is Walker's *subalba*. If I understand Osten Sacken's remarks aright, the male specimen that he refers to *mutabilis* has the abdomen marked as in the females; in my males the two yellow bands of the abdomen are extremely slender, and narrowly interrupted in the middle.

### 31. **Odontomyia** sp.

There are two specimens of a species of *Odontomyia* (♂ and ♀) which I have not succeeded in identifying with any described species. They are yellow, with the abdomen marked with a slender black stripe, the female mesonotum with three black stripes, the middle one suddenly narrowed behind the suture; in the male the whole dorsum is black, with the lateral margins yellow. This is another genus where he who describes isolated specimens without comparisons with allied species, and the study of considerable local material, is doing a positive injury.

32. **Blastocera speciosa** Gerstaecker, Linn. Ent. xi. 342.—Brazil.

Two specimens from Chapada. The dorsal stripes do not agree quite with the description, nevertheless the identification is not doubtful.

33. **Panacris lucida** Gerstaecker, Linn. Ent. xi. 347.—Cayenne.

One specimen, Chapada.

34. **Cyphomyia auriflamma** Wiedemann, Zool. Mag. iii, 54; Anal. Ent. 13; Auss. Ins. ii, 54; Gerstaecker, Linn. Ent. xi, 276.—Brazil.

Numerous specimens, Chapada.

35. **Cyphomyia** spp.

Two other species with the last, with abdominal spots, I cannot identify with any known species.

## SYRPHIDÆ.

1. **Mixogaster conopsoides** Macq.

Twelve specimens from Corumbá, and one from Rio de Janeiro. Macquart's description does not apply very well, but the species I believe to be his. The male front is broad as in the female. In the female specimen from Rio de Janeiro the second segment of the abdomen is more slender, and the last section of the fourth vein is sinuous, not broken, and without stumps.

2. **Microdon splendens** Wied.

Two female specimens from Chapada agree pretty well with the description; the color of the abdomen shows scarcely any steel-blue. The first antennal joint is largely red at the base; the spines of the scutellum are remote, and there is no yellow at the tip of the abdomen.

3. **Microdon mirabilis** n. sp.

♀.—Length 15 mm. Black, but little shining; third joint of antennæ large; scutellum without points; wings yellow and black. Head black; face and cheeks with white pile; front with black pile; third joint of antennæ broad, longer than the slender first joint; second joint very short. Mesonotum but very little shining, nearly bare; humeri, post-alar callosities and the pleuræ deep reddish black. Scutellum small, oval, wholly without spines or emargination, bare. Abdomen bluish black, a little shining, bare, broader than the thorax on the second segment, thence tapering regularly to the apex. Legs pitchy black, the four front femora and tarsi largely deep red; hind metatarsi cylindrical. Wings yel-



low and black; the margin of the yellow runs obliquely inwards from the tip of the auxiliary vein to the base of the anal angle, connected through the subcostal cell with a broad band reaching as far as the end of the first vein and terminating on the posterior side of the fourth vein in the second posterior cell; the black is of a deeper color in front, between the yellow.

♂.—Third joint of antennæ narrower; front only a little constricted. Abdomen, except the base and hypopygium, red. Wings black, with a narrow yellow band from the tip of the first vein nearly through the first posterior cell.

Two specimen, Chapada.

#### 4. *Microdon inermis* n. sp.

♂.—Length 8 mm. Black, with green and violet reflections; scutellum without spines; fourth abdominal segment golden tomentose; hypopygium yellow. Face shining green, white pilose; in profile not gibbose below; rather narrow. First two joints of antennæ reddish brown, the third wanting. Front black, with slight purplish reflections and black pile; constricted in the middle so that its least width is less than half the distance from the foremost ocellus to the base of the antennæ. Mesonotum deep black, opaque, with inconspicuous purplish or coppery reflections, bare. Scutellum more distinctly coppery purple, rounded, without spines, and with a scarcely noticeable emargination. Abdomen bare, deep black, with faint green and purple reflections; fourth segment as long as the two preceding together, on the posterior two-thirds or more shining yellowish green, thickly covered with light orange yellow pile or tomentum; hypopygium yellow. Legs black, the tibiæ in part, and all the tarsi deep brownish red; hind metatarsi not wider than the succeeding joints. Wings nearly uniformly tinged with blackish.

One specimen, Entre Rios, September. The species is evidently closest allied to *M. violaceus* Macq., but is at once distinguished by the fourth abdominal segment.

#### 5. *Microdon ? cyaneiventris* Macq.

♀.—Length 11 mm. Deep steel-blue with purple and coppery reflections; scutellum with spines; face with yellowish white pile. Face shining green, in profile parallel with the margin of the eyes. Front deep blue-black, with coppery reflections and some black pile above. Antennæ black; third joint a little longer than the first, cylindrical. Mesonotum resplendent coppery purple blue black, nearly bare. Scutellum strongly purple, with two remote spiniferous tubercles, bare. Abdomen deep steel blue, with purple reflections; the anterior angles of the third, fourth and fifth segments with fine white pubescence. Legs black. Wings nearly uniformly brownish.

Two specimens, Chapada. It is possible, though not very probable, that this is *M. cyaneiventris*, but the difficulty of distinguishing these allied species when the differences are not pointed out, renders their naming always a more or less doubtful procedure.

#### 6. *Microdon* sp.

Not unlike the species described by me as *M. aurifex* Wied. (but doubtfully the same—Synopsis of the N. A. Syrphidæ, p. 9), except

that the tibiæ and tarsi are yellow. The description, with that exception, applies (I do not possess the described specimen).

The genus *Microdon* I have found the most difficult one in the family, so far as identifications go. There seems to be considerable variation in not a few species, and, in the descriptions hitherto, almost none of the numerous structural characters have been made use of.

7. **Nausigaster punctulata** Williston, Synopsis N. A. Syrphidæ, p. 21.—United States, Mexico.

Three specimens from Chapada agree with the one mentioned by me from Tehuantepec. Whether they belong to a distinct species or not I cannot say.

**TRICHOPSOMYIA** gen. nov.

Small, wholly black, shining or opaque, moderately pilose species. Antennæ elongate, slender; first two joints of nearly equal length, third longer than the first two together; arista basal, small, bare. Face broad, pilose, with an obtuse tubercle, the epistoma receding. Frontal triangle of male large, broad, flattened, swollen on upper part; eyes in male narrowly, but closely contiguous, the ocellar tubercle prominent. Front in female broad, moderately narrowed above; the upper margin of head tumid and projecting. Scutellum triangular. Abdomen elongate oval. Legs of moderate strength; tarsi short, especially the front pair; metatarsi of front and hind pairs thickened, the remaining joints flattened; hind femora elongate and more or less thickened, the hind tibiæ arcuate and dilated; all the femora and tibiæ ciliate, of the hind legs conspicuously so. Wings as in *Pipiza* (*Pipizella*): posterior cross-vein rectangular, straight, last section of fourth vein bent or angulated. Eyes irregularly pilose.

This genus is allied to *Pipizella*, but will be at once distinguished by the vertex in the female and the frontal triangle in the male. The irregularly pilose eyes, with bare patches, will also serve to distinguish them. The neurulation in all the species described below agrees closely, and is very like that of *P. pulchella* Will.—Synopsis N. A. Syrphidæ, pl. ii, fig. 1. The species resemble each other much in color markings; the following description will apply to the known species:

Face and front shining black, clothed with sparse long white pubescence or pile, which has a flattened or curled appearance; on the uppermost swollen part

of the frontal triangle the color is opaque, and is clothed with straight, black pile; in both sexes the ocelli and vertex have black pile; post-orbital cilia white. Across the front part of the thorax, descending on the pleuræ, there is a band of yellowish or white pile, like that of the face. Legs black, the knees reddish; the first two or three joints of all the tarsi, except the hind metatarsi, light yellow. Antennæ red at base, the third joint brownish or brown.

8. ***Trichopsomyia polita*** n. sp.

♂.—Length 7 mm. Mesonotum opaque black; on the side, behind, and the scutellum metallic bronze black; pile black. Abdomen narrow, elongate, deep opaque black; the first segment, the narrow lateral margin of the second and the third, except a large basal triangle, and hypopygium, shining metallic bronze black. Hind femora considerably swollen, but not clubbed; hind tibiæ moderately dilated; middle femora of the male with a stout tooth below in the middle. Wings lightly infuscated; stigma brown.

♀.—Front wholly smooth and shining metallic greenish black, a small white spot near the orbit above; ocellar tubercle but little projecting. Mesonotum and scutellum wholly shining bronze black, the sides and posterior part white pubescent. Abdomen oval, wholly moderately shining greenish black, the sides and posterior part white pubescent. Middle tibiæ without tooth-like projection. Wings cinereous hyaline, the stigma pale yellow.

Two specimens, Chapada. Will be distinguished in the male by the tooth-like projection of the middle femora; in the female by the smooth front.

9. ***Trichopsomyia puella*** n. sp.

♂.—Length 6 mm. Ocellar tubercle strongly projecting. Mesonotum shining black, on the disc in front broadly opaque; pile long, mostly black. Hind femora moderately thickened at tip, slender on the basal three-fourths; hind tibiæ extraordinarily thickened and dilated, densely black pilose behind. Abdomen opaque black, the first segment slender, hind margin of second, a large triangle on each side of third, the fourth, except a large basal triangle, and the small hypopygium, coppery or metallic black. Wings brown; on the posterior part, and a cross band before the tip, subhyaline.

♀.—Front above only a little irregular, without distinct swellings. Abdomen wholly shining.

Four females and one male. Another male differs in having the abdomen narrower, the second and third segments largely yellow pubescent, and with yellow pile mingled with the black of the thorax. The female agrees with the last-mentioned male in the pubescence and pile, and the more elongate abdomen.

10. ***Trichopsomyia tuberculata*** n. sp.

♀.—Length 6 mm. Differs from the females of both the preceding species in having on the upper part of the front, below the ocelli, two prominent rounded tubercles forming with the prominent ocellar tubercle, an equilateral triangle; in having a black opaque cross band on the middle of the mesonotum, and in

the wings being brown on the anterior two-thirds, the distal part nearly hyaline, without the apical spot of *T. puella*. The hind femora are a little stouter than in the last-named species, the tibiæ less thickened.

One specimen, Chapada.

**11. *Trichopsomyia longicornis* n. sp.**

♀.—Length 8 mm. Antennæ slender, distinctly longer than the face. Facial tubercle large, rounded, deeply concave above and below it. Ocellar tubercle prominent, the front above uneven, but without distinct tubercles or ridges. Across the middle of the mesonotum a less shining, or subopaque band. Abdomen moderately shining metallic, clothed with fine yellow pubescence; the hind margin of the second and third segments subopaque black. Hind femora moderately thickened, the thickening greatest on distal half. Hind tibiæ strongly dilated and thickened, less so than in *tuberculata* and *puella*, more so than in *polita*. Wings cinereous hyaline, yellow at base, near the middle in front with a large yellowish brown spot.

From *polita*, it will be distinguished by the smooth front and the strongly dilated hind tibiæ; from *tuberculata*, by the front; from all, by the longer antennæ, wings, size, etc.

One specimen, Chapada.

**12. *Lepidostola pulchra* n. sp.**

♂ ♀.—Length 4.5 mm. Mesonotum with three bright yellow tomentose bands; fourth abdominal segment wholly shining.

♂. Antennæ reddish yellow, the third joint brownish or brown; longer than the face, slender, first two joints of nearly equal length, third a half longer than the first two together. Face in profile nearly perpendicular, with a gentle convexity near the middle; densely yellow dusted; two spots on the tubercle and a stripe on the cheeks black. Frontal triangle small, not swollen, with a shining black spot; vertical triangle yellowish dusted in front; eyes briefly contiguous. Mesonotum deep black, with a whitish pruinosity; not shining, bare, except three bands of bright yellow tomentum; the first band lies on the anterior part, behind the humeri, and descends more slenderly obliquely backward on the mesopleuræ, nearly to the middle coxæ; the middle band, the narrowest, extends across just behind the suture; the third, the broadest, forms an arc of a circle on the posterior part, reaching nearly to the ends of the middle band. Pleuræ nearly black, lightly dusted; behind the previously mentioned yellow stripe there is another elongate spot, as though a continuation of the middle dorsal band, interrupted by the root of the wings. Scutellum triangular, black, lightly pubescent. Abdomen black; the second and third segment on each side with a large trapezoidal yellow spot, leaving an inverted T-shaped space on the second, a more triangular space on the third, opaque black; first segment, the narrow edges of the two following, the narrow hind margin of the third, and the remainder of the abdomen, wholly shining, somewhat metallic, black; in shape, the abdomen is very narrowly oval. Four front femora and tibiæ reddish yellow; hind femora, except the base, and the hind tibiæ more brownish yellow or brown; first two or three joints of all the tarsi yellow, distal joints brown. Wings grayish hyaline; the elongate stigma, extending as a narrow cloud along

the costa to near tip of the second vein, where there is a narrow transverse spot, reaching into the first posterior cell; third vein straight, outer anterior angle of first posterior cell acute, the cell short petiolate; false vein wholly wanting.

♀. Front narrowed above, plane, black, not shining; below the middle a narrow, complete, yellow, pilose band. Third abdominal segment wholly without yellow; spots on the second more broadly separated, less nearly square than in the male.

One male and three females, Chapada (December). This species, with the following ones, is a most interesting addition to our knowledge of the fauna. It is a true *Lepidostola* (*Lepromyia* Loew.; *Lepidomyia* Will.), though the dense scale-like tomentum is confined to the thoracic bands. The femora are all thickened, with a double row of short, strong spines below. The three species are all allied with the long-antennæd *Chrysogastræ*. The veins of the wings are strong, the neurulation approaching nearly to that of *C. nigripes* Loew., except that the last section of the fourth vein is strongly bent near the middle, forming an acute angle at its insertion. The eyes, as restored over wet sand, show four or five brown (or purple?) horizontal, zigzag stripes.

13. ***Lepidostola similis*** n. sp.

♀.—Length 5 mm. Mesonotum with three bright yellow tomentose bands; fourth abdominal segment with two large, elongate, opaque spots.

A single specimen with the others, though closely resembling them, is evidently of a different species. The front is broader above, the face has a broad, shining black stripe, and both are rather thickly clothed with yellow tomentum like that of the thorax. The elongate yellow tomentose spot back of the stripe on the pleuræ is wanting, and in its stead there is a diffuse patch of fine white tomentum. The abdomen differs in having smaller yellow spots on the second segment. Large opaque spots on the third, and two large elongate ones, not reaching the hind margin, on the fourth. The last section of the fourth vein is strongly angulated, with a long stump of a vein projecting into the first posterior cell; the posterior cross-vein has also a stump. The stigma is blackish, the posterior cross-vein and anterior cross-vein with small, but distinct brown clouds. Lastly, the eyes differ in not having zigzag, but straight, horizontal markings.

14. ***Lepidostola abdominalis*** n. sp.

♀.—Length 6 mm. Black; third and fourth segments of abdomen densely yellow tomentose. Face shining black, in profile nearly vertical, descending much below the eyes. Antennæ slender, longer than the face, the third joint

longer than the two nearly equal preceding joints together; in color nearly black, the first joint red at base. Front black, not shining; ocelli situated on a prominent tubercle. Occiput densely light pollinose. Thorax black, not shining, the pleuræ sparsely clothed with fine white tomentum. Abdomen black, the third and fourth segments wholly and densely clothed with bright yellow pubescence or tomentum. Legs pitchy black, the four hind tarsi, except the two terminal joints, yellow. Wings cinereous hyaline, the stigma yellow; first posterior cell closed near the costa, the last section of the fourth vein nearly straight.

One specimen, Chapada. I suspect that the mesonotum has been deprived of its tomentum, to some extent, at least; there remains a small spot of yellow tomentum near each post-alar callus; in front of the scutellum there may have been a distinct band. The antennæ are about as long as the middle femora. The eyes do not show any markings after restoration over wet sand; they are probably unicolorous in life.

#### 15. *Melanostoma longicornis* n. sp.

♂ ♀.—Length 8 mm. Antennæ elongate, face pollinose on the sides with punctate spots; third segment of the abdomen with two yellow spots.

♂. Mesonotum bronze green.

♀. Front with two oval, opaque spots; mesonotum blue, with three black stripes; front tarsi dilated.

♀.—Face in profile nearly straight below the antennæ to within a short distance of the oral margin; shining black, sometimes bluish; in the middle and a stripe on the cheeks bare; on the sides rather thickly pollinose, leaving numerous small, round, bare spots. Antennæ brownish yellow, the third joint more brown; slender, nearly as long as the front; first and third joints of nearly equal length, the second short. Front below and at the vertex shining, bluish black; below the rather prominent ocellar tubercle an oval opaque spot on each side on a grayish pollinose ground. Thorax metallic blue, but little shining; mesonotum thinly pollinose, with three black stripes, the median one slender and dilated triangularly in front of the scutellum; the lateral ones beginning broadly at the suture and attenuated posteriorly. Pleuræ light pollinose. Scutellum shining metallic blue. Abdomen black, moderately shining, the first segment and the anterior angles of the three following segments shining blue; third segment with two reddish yellow spots in front. Wings hyaline, subcostal cell yellowish brown; the extreme tip of the wings brownish or blackish. Legs yellow, or reddish yellow; hind femora, except the base and hind tibiae, deep brown; four front femora more or less brownish at the base; distal joints of four hind tarsi, and all of the front pair, brownish; front tarsi moderately dilated.

♂.—Mesonotum and scutellum shining metallic bronze green, with only feeble indications of stripes; pile longer, more abundant and yellow. Abdomen less shining, the first and fourth segments shining green. Wings tinged with yellow.

Five females and one male, Chapada. This species has the general habitus of a *Melanostoma*, notwithstanding the differences in the structure of antennæ and abdomen. In both sexes the abdomen is

narrowed basally; in the female only on the second segment, which is gently concave on its sides; in the male it does not attain its full width till the tip of the third segment.

16. **Melanostoma scitulum** n. sp.

♂.—Length 7 mm. Allied to *M. longicornis*. Antennæ less elongate, the three joints of nearly equal length, the third not twice as long as wide. Face on the sides with a slender stripe and spot of pollen, not punctulate. Abdomen narrow, of nearly equal width throughout; fourth segment also with two yellow strigulæ. Four front tarsi wholly yellow. Wings hyaline, an elongate stigmatic spot and narrow clouds on the cross-veins, brown.

Two specimes, Chapada.

17. **Melanostoma bucephalus** Wiedemann (*Syrphus*).

Numerous specimens, Chapada. Wiedemann's description applies well to the males. The females are usually larger, reaching 13 mm. in length, and the mesonotum is not bronze colored, but deep shining blue; there is also a pair of yellow spots on the second segment. The shape of the abdomen is more oval than usual among *Melanostomata*.

18. **Syrphus gastrostactus** Wied.

A dozen male specimens from Chapada may be this, but the wings are only narrowly blackish in front, and only the hind tarsi may be called white with their tip brown; the other tarsi are more yellow or brownish. The spots on the abdomen are small and oval. On each outer end of the transverse suture, and on the post-alar callosities, there is a small yellow spot.

19. **Syrphus erraticus** n. sp.

♂ ♀.—Length 10–11 mm. Face, frontal triangle and cheeks, deep shining blue; on the sides of the face yellow, with whitish pollen; frontal triangle with black pile and a small opaque spot; front narrowed above, across the middle with a narrow pollinose band, above which the color is more opaque, brown, or coppery black. Antennæ brown; third joint pointed, more than twice as long as wide. Eyes bare. Thorax bluish black, or blackish blue; mesonotum with three opaque black stripes, the median one linear, the outer ones acute behind. Scutellum opalescent yellow; a slender crescentic brown band before the narrow yellow base. Abdomen oval, black, moderately shining; second segment with two yellow bands, not attaining the lateral margin; the first band is a little broader exteriorly and interrupted in the middle; the second is crescentic, emarginate in the middle behind, and acute on the outer ends. Halteres with a yellow head. Wings hyaline, with the anterior part dark brown; the brown fills out the first basal cell, and the submarginal, except an elongate space in the middle behind. Legs pitchy brown; the hind legs more black; the middle tibiæ at the base yellow.

Ten specimens, Chapada.

20. **Mesograpta anchorata** Macq.

Chapada, several specimens.

21. **Mesograpta musieus** Wied.

One specimen, Corumbá.

22. **Mesograpta** sp.

Not unlike *M. insignis* Schiner, but the anterior black dilatation of the third and fourth abdominal segments projects each side more acutely, and does not have the small, oval, lateral spot; the face is more or less blackish in the middle, the antennæ brownish or blackish above, the scutellum black with a yellow margin, and the hind tibiæ and tarsi brownish or blackish.

Numerous specimens, Chapada.

23. **Mesograpta** sp.

There are three or four other species from Rio de Janeiro and Chapada that I am unable to determine.

24. **Ocyptamus dimidiatus** Fabr.

Numerous specimens, Chapada, Rio de Janeiro.

25. **Ocyptamus trigonus** Wied.

*Baccha torva* Williston, Synopsis N. A. Syrphidæ, 124.—Texas.

Forty specimens, Chapada. The description of *B. torva* applies better than does Wiedemann's, nevertheless, there is no doubt of the determination.

26. **Ocyptamus funebris** Macq.

Ten specimens, Chapada, Rio de Janeiro.

## BACCHA.

### TABLE OF SPECIES.

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| 1. Alulæ rudimentary; mesonotum shining black with slender pollinose stripes, yellow on the sides..... | 2.                 |
| Alulæ not rudimentary .....  | 5.                 |
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| Less slender; abdomen shorter than the wings; face yellow .....  | 4.                 |
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5. Red or yellowish species; front with a more or less pronounced obtuse antenniferous projection marked with a round black spot; front of female narrow above, the ocelli rather remote from the vertex; mesonotum (except the sides) in ground color black, concealed beneath dense ochraceous pollen, leaving more or less apparent black stripes; legs yellow, the hind femora or tibiæ more or less brownish or blackish.....6.  
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 First two antennal joints short.....7.
7. Third and fourth abdominal segments with slender yellow stripes.....8.  
 Third and fourth abdominal segments with slender spots in the shape of a rectangular V.....**placiva** n. sp.
8. Black stripes of mesonotum conspicuous; wings broad, brownish yellow.  
**phæoptera**.  
 Black stripes inconspicuous, mostly concealed beneath light pollen; smaller species.....**livida**.  
 .....**flavipennis**.
9. Wings hyaline, except the immediate base; hind femora and tibiæ black ciliate; penultimate joints of hind tarsi white; front tarsi of female dilated.....**pilipes**.  
 Not such species.....10.
10. Face projecting, yellow with a black stripe; wings hyaline with the subcostal (and costal  $\sigma$ ) cells clouded.....**clavata**.  
 Face not projecting, wings more or less extensively brown.....11.
11. Hind tarsi, except base of metatarsi, white.....12.  
 Hind tarsi not white.....13.
12. Abdomen broadly spatulate distally.....**clarapex**.  
 Abdomen not broadly spatulate distally; the whole apex of the wings in both sexes hyaline; smaller species.....sp. 40.
13. Thorax deep blue.....sp.  
 Thorax black; third and fourth abdominal segments each with four oval yellow dots, in two pairs, the anterior pair remote, the posterior pair approximate.....**adpersa**.

27. **Baccha stenogaster** n. sp.

$\sigma$ .—Length 7—8 mm. Frontal triangle metallic, blackish blue, finely rugose. Face of the same color, thinly dusted, on the sides and below yellowish. Antennæ yellowish red, third joint short, yellowish red. Mesonotum metallic bronze black, in front with two pollinose stripes. Pleuræ largely obscurely yellowish. Abdomen very slender; shining black; first segment on the sides, the second and third with a basal band and one just beyond the middle, fourth segment at the base, yellow. Wings short and small; hyaline, the costal cell, beyond the tip of auxiliary, brownish yellow; third vein nearly straight, terminating at the tip of the wing; last section of fourth vein *f*-shaped, terminating rectangularly. Legs yellow, the hind metatarsi a little thickened.

Two specimens, Chapada. The species is allied to *brevipennis* and *rugosifrons* Schiner, but differs in the color of the legs and markings

of the abdomen. In one of the specimens, the hind tibiæ and tarsi are a little darker colored, and the fourth abdominal segment does not show a yellow band at its base.

28. **Baccha variegata** Macq.

A male specimen from Rio de Janeiro. Macquart's description leaves no doubt of the determination. The third vein is less convex and the fourth less oblique than he figures them.

29. **Baccha exigua** n. sp.

♂ ♀—Length  $5\frac{1}{2}$  mm. Face and front yellow (or reddish yellow), narrow; a small round black spot near the base of the antennæ above; from just in front of the ocelli, which are rather remote from the vertex, the front is shining black. Antennæ reddish yellow, small. Mesonotum, except a yellow lateral stripe, shining black, with three densely pollinose, approximate, light yellow stripes, the median one reaching nearly to the scutellum, the lateral ones abbreviated behind. Scutellum yellow, a large semi-oval spot on the dorsum, and a small one on each lateral margin at the base, deep shining black. Pleuræ yellow, with two or three metallic blue spots; pectus metallic blue. Abdomen elongate spatulate in the female, narrower and more cylindrical in the male; shorter than the wings; shining black, in the female with three longitudinal yellow stripes on each of the segments and an oblique lateral spot (effected by drying?). Legs yellow; hind femora before the end with a blackish, hind tibiæ with two narrow brown rings. Wings hyaline; subcostal cell brown; a triangular brown spot filling out the end of the submarginal cell from beyond the end of the fourth vein; third vein nearly straight, terminating at the tip of the wing; last section of the fourth vein nearly straight and rectangular; alulæ rudimentary.

Two specimens, Chapada.

30. **Baccha conjuncta** Wiedemann (*Syrphus*).

Wiedemann's description applies excellently to a single female specimen, except in the color of the terminal segments of the abdomen; the third and fourth segments are black with a yellow anterior band, the fourth and fifth with two yellow longitudinal spots. The elongate antennæ and the unusual shape of the abdomen, which acquires its greatest width in the third segment, make the insect rather peculiar for a *Baccha*; nevertheless, its relationship with *B. phaeoptera* is very evident. The anterior tarsi are dilated in the female, and the ocelli are placed considerably forward.

31. **Baccha phaeoptera** Schiner.

Numerous specimens, Chapada. In the second line of Schiner's description *divergirend* should be read for "convergirend." In all the specimens, there is a median linear yellow stripe. One of the specimens with the rest I am in doubt whether to locate with this or

the next. The color of the wings is as in *phaeoptera*, but the thorax is like that of *livida*, and the wings in breadth seem intermediate between the two.

32. **Baccha livida** Schiner.

Numerous specimens, Chapada. Both males and females among themselves differ very materially in size, but I cannot distinguish them specifically. The abdomen among the females differs very materially in the shape of the second segment, and all those in which it is broad seem to have the front somewhat broader above. *Baccha lineata* Macq. seems to be an allied species.

33. **Baccha** n. sp.

Several closely allied specimens differ from *phaeoptera* and *livida* in the wings being nearly hyaline, with the costal and subcostal cells yellow; in the pile of the thorax and abdomen being longer and more abundant; in the hind femora and tibiæ being darker, and briefly black ciliate, and in the structure of the abdomen. The abdomen is not as long, and not as slender basally; in the male the second segment (first of Schiner) is scarcely more than twice as long as wide; in the female scarcely twice as long as its distal width; in both sexes there is an oblique yellow spot on each side distally. In both sexes the remaining segments are less dilated and the black stripes of the mesonotum are narrower.

34. **Baccha flavipennis** Wiedemann (*Syrphus*).

Numerous specimens from Chapada. The identification is not very doubtful if an error is assumed in Wiedemann's description of the abdomen. He speaks of six segments in the male abdomen, whereas there are but five, and the second segment should read "rein braun, an jeder Seite der Spitze mit rötlich gelbem Querfleck, dritte bis fünfte mit zwei," etc., "der dritte Abschnitt allmählig erweitert." The species is allied to the preceding ones, especially the last, the head and legs being as in the last specimen, the markings of the abdomen like those of *livida*; the hind tibiæ are noticeably black ciliate. The female wings differ markedly in being brown on the basal portion, hyaline distally. The abdomen is much less constricted basally than in any of the preceding, the second segment being nearly as broad distally as it is long. *Syrphus rubricosus* Wied. seems to be a nearly allied species, but there are also some discrepancies here in the markings of the abdomen. Our specimens vary in length from six to nine millimeters.

**35. *Baccha placiva* n. sp.**

♂ ♀.—Length 11 mm. Structure and coloration of head, thorax and legs as in *B. phæoptera*. Abdomen, male: first segment yellow with a blackish brown cross-band; second segment elongate, cylindrical, but little widened distally; in color reddish yellow with the distal end blackish; third segment nearly as broad as the thorax distally, brownish black with two oblique reddish stripes, in the form of a V, separated by a linear space in front and running into the posterior margin behind; fourth segment a little broader than long, with the same color and markings as the third, and (apparently) a yellow longitudinal stripe on each side. In the female the second segment is nearly as slender as in the male, the three following segments with a V-shaped marking as in the male and a lateral longitudinal stripe or margin. Wings yellowish brown in front, the costal cell yellow; behind broadly grayish hyaline; third longitudinal vein with a deep sinuosity into the first posterior cell, almost as in species of *Didea*.

Two specimens, Chapada.

**36. *Baccha* sp.**

A single injured female specimen, belonging in the group with the foregoing, has the costal and marginal cells yellow, and the subcostal brown, the rest of the wing hyaline; the abdomen is not broad, and not cylindrical basally, the second segment but little longer than the third and not twice as long as its greatest width; the second segment with two yellow and two brown bands, the third, fourth and fifth each with the anterior border and anterior lateral yellow and two oval oblique yellow spots, connected or not with the yellow margin in front. Length 11 mm.

**37. *Baccha pilipes* Schiner.**

Three specimens, male and female, Chapada. The identification is not at all doubtful, though Schiner leaves it to be inferred that the abdomen is shining black, whereas it is deep opaque black; the parts he describes as reddish yellow in these specimens are more metallic blue. The last two joints of the hind tarsi are brown.

**38. *Baccha adspersa* Wied.**

Numerous specimens, Chapada.

**39. *Baccha clarapex* Wied. (*Syrphus*).**

Wiedemann's description leaves no doubt of the correctness of the determination of numerous specimens from Chapada and Uarcarizal, though to no one will it fully apply. In almost every case the frontal triangle and the median portion of the face is shining steel-blue, not black; in only one or two specimens the yellow spots of the abdomen are as he describes them; in most cases there is an additional

pair in front, and generally they are only represented by shining spots on the opaque. Only the hind tarsi are white. The female has the whole distal end of the wing hyaline.

40. **Baccha** sp.

Allied to *clarapex*, but smaller, the abdomen less spatulate, apparently without the strigulæ, the wings wholly hyaline at the tip (for a greater distance in the female) and the axillary angle not hyaline. The tibiæ of the four anterior legs in the female are yellowish at the base. Six specimens, Chapada.

41. **Baccha clavata** Fabr.

*Baccha Babista* Walker, List, etc., iii. 549 (male); Williston, Synopsis N.

A. Syrphidæ, 117, pl. iv, fig. 9.—N. Amer.

*Baccha facialis* Thomson, Eug. Resa, 504 (female).—Galapagos.

*Spazigaster bacchoides* Bigot, Ann. Soc. Ent. Fr. 1883, 326.

Numerous specimens. It is not impossible that *B. fusciventris* Wied., is the female of this species.

42. **Salpingogaster nigra** Schiner.

Numerous specimens from Chapada and Rio de Janeiro. The description leaves no doubt of the identity. I observe but little differences between the front tarsi in the two sexes; in the male there is a small, but distinct angulation of the hind tibiæ.

43. **Salpingogaster pygophora** Schiner.

Two specimens, female (Rio de Janeiro) and male (Chapada). I refer the two doubtfully to each other, and more doubtfully to this species, but, as Schiner was in doubt himself as regards the union of the two sexes he described, it is possible that they all may belong to one variable species. The pleuræ of the male are broadly yellow and brownish yellow, the mesonotum less dark, the vertical triangle shining black, and the hind femora without any dark ring. In the female the thorax is as described for the male, the scutellum for the female, the abdomen more of a deep brown than black, the legs yellow with the hind femora, except the tip, black, the distal part of hind tibiæ and the tarsi reddish yellow. In his specific descriptions the second segment of the abdomen is called the first, etc. By comparing the portion bearing the mammiform processes at the base with the corresponding part in *Ceria*, *Baccha*, *Melanostoma*, etc., it will readily be seen to be the first segment. There is a very marked difference in the male hypopygium between this and the preceding species, but similarity of structure, otherwise, is too great to distinguish them generically.

**VOLUCELLA.****TABLE OF SPECIES.**

1. Scutellum with six stout spiniferous tubercles.....**scutellata.**  
Scutellum without tubercles; with or without bristles.....2.
2. Deep metallic species, the abdomen without light markings.....3.  
More or less reddish, yellowish, or brownish, the abdomen not uniformly dark metallic.....6.
3. Face and front metallic like the thorax.....4.  
Face and front reddish yellow; wings with a large quadrate brown spot.  
**meretricias** n. sp.
4. Second longitudinal vein sinuous before its tip, marginal cell petiolate; third joint of antennæ short.....5.  
Second vein regular, ending in the costa or tip of first vein...**viridis** n. sp.
5. Bright metallic, usually green, species; wings nearly hyaline at base.  
**obesa.**  
Deep blue; wings deep brown at base.....**æmula** n. sp.
6. A transverse row of bristles on the mesonotum in front of the scutellum...7.  
No such bristles present.....9.
7. General color metallic reddish; a well-defined quadrate spot on the wings.  
**macula.**  
Mesonotum deep blue, with violet reflections; wings clouded distally; more elongate species.....8.
8. Front black; marginal cell petiolate.....**prescutellaris** n. sp.  
Front reddish yellow; marginal cell closed in the costa, or open.  
**persimilis** n. sp.
9. Second longitudinal vein strongly sinuous near the tip; wings variegated.  
**picta.**  
Second vein regular, not bent into submarginal cell.....10.
10. Face acuminate, projecting strongly forward; front shining black; dark species; wings without dark spot.....**fuscipennis.**  
Face not remarkably acuminate, not projecting strongly forward; largely reddish or yellowish species.....11.
11. Disk of mesonotum black or metallic brown; marginal cell open or briefly petiolate.....12.  
Mesonotum reddish or yellowish.....13.
12. Legs black, femora, except distal fourth, light yellow; mesonotum shining black, with the lateral margins yellow.....**musta** n. sp.  
Legs reddish brown; mesonotum metallic brown, the sides and posterior expansion yellow.....**mus** n. sp.
13. Wings pure hyaline, stigma minute.....**pallens.**  
Wings clouded distally; stigma small.....**? punctifera.**
44. **Volucella scutellata** Macq.

Two female specimens I doubtfully refer to this species. They have the six singular spiniferous tubercles on the scutellum. The face is in no wise black below, the red pile of the front is only blackish in certain reflection, the pile of the mesonotum is wholly light fulvous and not at all black, and the wings are hyaline with a quad-

rate dark brown spot. The third joint of the antennæ is gently concave. In front of the scutellum there are six short approximated black spines in a row. Macquart says: "extremite de la face noire. Thorax et abdomen à poils noirs," and, of the wing nervures: "transversales bordées de brun, ainsi que le stigmaté."

45. **Volucella meretricias** n. sp.

♂.—Length 10—12 mm. Eyes fulvous pilose. Frontal triangle small, a little protuberant, with a little black pile in the middle; of the same color as the face. Face translucent reddish yellow, projecting downwards and forwards, the under margin of the cheeks concave, the facial concavity long, the tubercle large and obtuse. Antennæ a little more reddish than the face, slender, the third joint gently excised above and narrowed on the distal part; the arista with moderate pilosity. Thorax deep blue with violet reflections, with erect black pile and some white pubescence. Scutellum like the mesonotum. Bristles on the sides of the mesonotum and margin of the scutellum, and a transverse row in front of the scutellum. Abdomen deep blue, with violet reflections, with short, black pile. Legs black. Wings grayish or brownish subhyaline; a large quadrate brown spot reaching from the costa to the fourth vein and thence to the proximal part of the posterior basal cross-vein; costal, subcostal and first basal cells clouded; marginal cell regular, closed.

♀.—Front a little darker than the face, clothed with black pile; a short, crescentic groove on each side. Abdomen nearly bare, except distally. Third antennal joint broader.

Six specimens, Chapada and Rio de Janeiro. The species is allied to *Temnocera Frauenfeldi* Schiner, but will be distinguished by the blue color and wing spot.

46. **Volucella obesa** Fabr.

Thirty-eight specimens from Chapada and Rio de Janeiro.

47. **Volucella æmula** n. sp.

♀.—Length 15—18 mm. Closely allied to *V. obesa*, but differs in the deeper blue color, showing only moderate green reflections on the mesonotum, and at the tip of the abdomen. In the larger size (*V. obesa* rarely exceeds 12 mm.) and in the wings being deep brown at the base. The wings are more infuscated in front, the quadrate spot from the stigma to the cross-vein is larger, as is also the spot at the tip of the marginal cell. In the structure of the antennæ, wings and face they scarcely differ.

Two specimens, Piedra.

48. **Volucella macula** Wied.

Four specimens from Chapada I identify as this. There is a difference in the amount of red color on the thorax and abdomen, and in the depth of violet reflections. The arista is long and finely plumose, there is no emargination on the upper part of the third an-

tennal joint, and there are bristles on the lateral margin of the mesonotum, on the border of the scutellum, and an even row of about ten in front of the scutellum. The veins of the wings in two are distinctly clouded, in the other two scarcely at all. The front of the female is narrow and red. The middle legs have bristles and spurs as in *V. prescutellaris*.

49. ***Volucella prescutellaris*** n. sp.

♂.—Length 11—12 mm. Frontal triangle black, but largely obscured by the reddish yellowish pollen; in the middle with an acute tubercle, the profile showing two straight lines meeting at an angle of about one hundred degrees. Antennæ reddish yellow, the distal part of the third joint narrowed, though but little excised; arista long and thickly plumose. Face translucent yellow, only shallowly concave below the antennæ, the tubercle large and obtuse; lower margin of the cheeks nearly straight, meeting the plane of the occiput at an angle of about one hundred and ten degrees. Mesonotum blue, with strong violet reflections; pile moderately abundant, golden yellow. Scutellum translucent yellow, with black pile on the disk. Pleuræ blackish brown, somewhat dusted above; pile yellow. The sides of the mesonotum, mesopleuræ, post alar callosities, a transverse row in front of the scutellum, and the margin of the scutellum with strong black bristles. Abdomen *Musca*-like in shape, with erect black and yellow pile; first segment black, except the lateral angles; second segment yellow, with a median stripe extending along the anterior suture outward, black or brownish black; third segment yellow, with a posterior band, dilated in the middle into a stripe that reaches the front margin, black; fourth segment black with blue reflections, and with the anterior angles reddish or yellowish. Legs black, with black pile; tibiæ and metatarsi more or less reddish; middle femora on the posterior side near the tip with two or three bristles, and the middle tibiæ with three or four well-defined spurs at the tip. Wings nearly hyaline, the outer part brown or brownish, behind tinged with blackish; marginal cell closed some little distance before the costa.

♀.—Front shining black, with black pile; the narrow orbit below the ocelli, and the sides below, thickly grayish yellowish pollinose; corresponding to the tubercle in the male, there is an obtuse convexity. Third antennal joint broader.

Eleven specimens, Chapada. The color of the abdomen varies posteriorly, so that it sometimes appears black, with the sides of the third segment in front reddish or yellowish.

50. ***Volucella persimilis*** n. sp.

Remarkably like the preceding, though certainly distinct. The frontal triangle of the male is yellow, not black, and is only gently convex, not angular in profile; the third joint of the antennæ is less narrowed distally, and the cheeks have a black or brown stripe. In the female, the front is translucent reddish yellow, without the convexity and depression of *V. prescutellaris*. In both sexes the lateral



margin of the mesonotum and the pleuræ are yellowish red, the legs are brownish red throughout, and the marginal cell is either closed in the margin or narrowly open.

Eleven specimens, Destares, Chapada and Rio de Janeiro. The wings in both species vary in the depth of brown color on the outer part.

**51. *Volucella musta* n. sp.**

♂.—Length 9–10 mm. Frontal triangle and face light yellow, with similarly colored pile; cheeks shining black, except behind. Antennæ reddish yellow, third joint rather short, not at all incised; arista not densely, moderately long, plumose. Facial concavity strong, tubercle hemispherical; lower part moderately acute, produced only a little forwards. Thorax light yellow, with moderately abundant, light yellow pile; mesonotum, except the broad lateral margins, and a spot on the meso- and sterno-pleuræ, shining black. Scutellum light yellow, the distal margin narrowly brown. Sides of the thorax and margin of scutellum with weak yellow bristles. Abdomen: first and second segments light yellow, the second with a linear median reddish stripe, and a posterior narrow blackish brown band; the following segments each with a similar posterior band, with the other parts yellowish, reddish, brownish, or blackish; pile very short, chiefly blackish. Legs black, with short, yellow and black pile. All the femora, except their distal fourth or fifth, light yellow. Wings lightly tinged with yellowish; the small stigmatic spot brown, the cell beyond it yellow; marginal cell closed in the border or narrowly open.

Nine specimens, Chapada, November, January. The black of the cheeks has an indication of a yellow bisection, and the black of the mesonotum has, in one specimen, a distinct violet reflection.

**52. *Volucella mus* n. sp.**

♂.—Length 9–10 mm. Frontal triangle small, light yellow. Antennæ reddish yellow, of moderate width, not excised, longer than in *V. musta*; arista rather strongly plumose. Face yellow; a median stripe, and one on the cheeks, brown; tubercle obtuse, below slenderly conical, produced forwards, the lower border of the cheeks concave. Mesonotum coppery red, with strong violet reflections; the lateral margins, and angular expansion behind, yellow. Pleuræ yellow and brownish red. Scutellum yellow; red, with violet reflections across the disk; impressed before the tip. A black bristle on the upper part of the meso-pleuræ, a row on the lateral margin of the scutellum. Abdomen yellow; second segment with a blackish brown posterior band; third with a similar band, sending three slender prolongations to the front margin; fourth with a median stripe and an oblique lateral spot. Legs luteous, the tibiæ and tarsi brownish. Wings hyaline, with a yellowish tinge distally; the subcostal cell beyond the small brownish stigma yellow; marginal cell closed and petiolate.

♀.—Front luteous yellow, with a brownish interrupted median stripe; third joint of the antennæ a little broader.

Eleven specimens, Chapada. The marginal cell varies much, as does also the color of the distal abdominal segments. The disk of the mesonotum is sometimes coppery red, with only a weak purple or violet reflection, at other times deeper.

53. **Volucella punctifera?** Bigot (? *V. testacea* Rondani).

Two specimens (♀ ♀) agree with Bigot's description fairly well, but its brevity will not permit any certainty in the determination. The marginal cell is closed in the costa, and the tibiae and tarsi are blackish, rather than brownish.

54. **Volucella pallens** Wiedemann (*V. sexpunctata* Loew.).

Two specimens, Rio de Janeiro. The specimens offer no noteworthy differences from North American ones.

55. **Volucella tympanitis** Fabr.

One male specimen, Chapada.

56. **Volucella picta** Wied.

Fourteen specimens from Chapada. The species is closely allied to *pusilla* Macq., but is distinct. There is so much variation among the specimens that identification might be doubtful with certain isolated ones. While in some of the females the median facial stripe is but little darkened, in the greater number there is a distinct black stripe. In all the males there is a quadrate lateral spot in front of the suture; in the females there is an additional, slender, acuminate spot from the suture to the post-alar callus. The thorax in the males is chiefly black pilose above; in both the males and female there is black pile on the borders of the scutellum; the small, yellow, prescutellar spots are sometimes wanting, etc.

57. **Volucella viridis** n. sp.

♂.—Length 7–8 mm. Eyes with erect white hairs, giving a peppered appearance on front view. Frontal triangle small, yellow, third joint not at all incised; arista chiefly yellow, thinly but moderately long, black plumose. Face shining green, with blue reflections, sparsely clothed with yellowish hair; projecting downward, but not acutely so, the concavity above deep, the tubercle rather obtuse. Thorax brilliant shining green, the mesonotum with violet reflections; pile erect, not very abundant, golden yellow. Scutellum violet, the tip more or less luteous; before the tip with a transverse depression. Lateral margins of the mesonotum and scutellum with hairy bristles. Abdomen wholly bright shining green, with erect, short, yellow pile. Legs luteous, the hind femora with some green reflections; all the femora and tibiae with pile, chiefly black, giving a ciliated appearance, especially on the hind tibiae; hind metatarsi a little thickened. Wings nearly hyaline on the basal half or more, abruptly brownish on the outer part; marginal cell narrowly open.

♀.—Front of equal width, shining green with yellowish pile; below the somewhat swollen vertical portion, the front is excavated, leaving a large, obtuse, median tubercle.

Five specimens, Chapada. There is a more or less ill defined yellow spot or stripe on the anterior part of the cheeks.

58. **Volucella fuscipennis** Macq., Dipt. Exot. ii, 2, 24.

Two male specimens, Chapada. The species, as Macquart observes, is nearly related to *V. vesiculosa*. The wings have a minute stigmatic spot, and in both specimens the marginal cell is narrowly open.

**APOPHYSOPHORA** gen. nov.

Allied to *Volucella*. First two joints of the antennæ short, third elongate; arista plumose. Face descending downward as in *Volucella*, with a well-marked tubercle; sparsely pilose. Front in female narrowed above, on each side with a crescent-shaped groove; tuberculate, one tubercle at the vertex, bearing the ocelli, the other about midway between it and the base of the antennæ; eyes of male contiguous. Sides of thorax and margin of scutellum with bristles. Scutellum strongly gibbose and tuberculate above. Abdomen short, broad, flattened. All the femora and tibiæ are ciliate. Eyes pilose, leaving numerous separated or subcontiguous round lighter colored spots bare. Marginal cell closed or open.

59. **Apophysophora hirtipes** Macquart (*Volucella*).

♂ ♀.—Length 8—9 mm.; width of abdomen 5 mm. Black, abdomen partly luteous; feet pitchy reddish black; wings grayish hyaline with a large brownish yellow spot; hind tibiæ crescentic. Face shining black, the prominent rounded tubercle somewhat pitchy; pile moderately abundant, white; cheeks behind with a yellowish spot or stripe. Third joint of antennæ reddish brown, cinereous, not excised on either border; arista with dense short pile on its whole length and less abundant, longer plumosity of the ordinary *Volucella*. Median frontal tubercle of the female less projecting than the vertical one; vertex with black pile. Mesonotum shining black, with bronze or metallic reflections; not thickly pilose, in front and behind light colored, cross the middle, black. Scutellum pitchy red, black and yellow pilose; strongly gibbose above, forming two stout, obtuse, tubercles, separated by a shallow, broad notch, the superior posterior part shallowly concave; viewed from in front the tubercles appear to be on the margin of the scutellum, but from the side there is seen a flattened declivity to the rounded margin upon which the bristles are implanted. Abdomen shining, black, or pitchy black, the base luteous on the sides. Legs reddish, or pitchy brown or black, the pile black; all the tarsi, except the hind metatarsi, reddish yellow; hind tibiæ very much dilated, crescentic; hind metatarsi swollen. Wings nearly hyaline at base, lightly infuscated without and behind; near the middle in front with a large diffuse brownish spot; veins mostly yellow; marginal cell closed or narrowly open.

Two specimens, Chapada. This species does not agree wholly with Macquart's description, but I think it is the same. All the tibiæ are "herissées de poils," and the figure of the legs is not at all correct. Bigot placed this species in the genus *Phalacromyia*, for what reason I do not know, as he seems to have been unacquainted with it. *Phal. vicina* Bigot he believes to be nearly allied, from the pilosity of the hind tibiæ, though it has the scutellum normal. *Phal. melanorrhina* Bigot seems to have a similar frontal tubercle. Especially characteristic of the genus is the peculiar style of ocular pilosity.

60. ***Apophysophora scutellata*** n. sp.

♀.—Length 5—6 mm. Antennæ reddish brown, or reddish black; the arista yellow, long and loosely plumose. Face pitchy black, sparsely light yellow pilose, with whitish pollen below the antennæ; tubercle obscurely yellowish; the cheeks in front with a yellow or luteous stripe to the oral margin. Front shining black, vertical tubercle very prominent, sharply conical; median tubercle small, but very distinct, rounded. Mesonotum metallic bronze black, with light yellow pile, and, across the middle, black pile. Scutellum wholly translucent, light amber yellow; large, swollen, as long as wide, obtusely triangular in side view, at the base projecting directly upwards to a level with the top of the dorsum, forming three rounded tubercles, shallowly separated, the middle one the most prominent. Abdomen pitchy black, shining, the first segment and the base of the second yellow. Legs black pitchy, the tarsi yellow; all the femora and tibiæ short ciliate with black pile; hind tibiæ moderately arcuated and dilated. Wings nearly hyaline on the basal posterior part, in front yellow or yellowish; from beyond the anterior cross-vein infuscated, brown in front; marginal cell wide open.

♂.—Ocellar tubercle and frontal triangle moderately swollen, shining green. Abdomen more reddish, the second segment with two opaque black spots.

Twelve female and two male specimens, Chapada.

## ERISTALIS.

### TABLE OF SPECIES.

Arista bare; eyes pilose; hind femora thickened.

1. Dorsum of thorax with one or more ashy or shining transverse bands.....2.  
Dorsum uniform in color, or with longitudinal stripes.....13.
2. A complete transverse band in front of the scutellum.....6.  
Dorsum opaque black in front of the scutellum. .... 3.
3. Presutural ashy band distinctly interrupted.....sp.  
Presutural band entire .....4.
4. Marginal cell distinctly widened before its tip (i. e. the second vein has a slight, but distinct curvature backward before its end); no gray clouds in the marginal and submarginal cells. .... **albifrons**.  
Marginal cell regular, second vein not curved before its end..... 5.



**62. *Eristalis obsoletus* Wied.**

Two specimens, Rio de Janeiro and Chapada. I would only add to Schiner's remarks that the pile of the femora is variable.

**63. *Eristalis ochraceus* n. sp.**

♂. Length 12 mm. Face yellow, thickly covered with light ochraceous yellow pollen; cheeks shining red. Front tinged a little darker than the face, with yellow pile. Antennæ and bare arista light reddish yellow. Eyes briefly pilose, the facets on upper half distinctly enlarged. Mesonotum densely opaque ochraceous yellow, with similar colored pile; four or six slender stripes, feebly indicated. Pleuræ lighter colored than the mesonotum. Scutellum opaque reddish yellow. First abdominal segment whitish yellow; second segment of the color of the scutellum, with a slender blackish brown anterior margin, a linear brown stripe, and a narrow posterior blackish brown band in front of the yellow hind margin; third segment blackish, with a red lateral spot and hind margin, and a narrow entire shining median band; fourth segment opaque blackish, with a shining metallic band; hypopygium shining. Legs red; base of the tibiæ and the tarsi, except their tips, yellow; distal portion of hind femora, and a ring on the hind tibiæ, blackish, the distal part of front femora and tibiæ brownish red. Wings pure hyaline; veins reddish.

One specimen, Chapada.

**64. *Eristalis furcatus* Wied.**

Two specimens, Rio de Janeiro and Chapada. The scutellum is as Wiedemann describes it. The synonymy of *furcatus* Macq. admits of no doubt.

**65. *Eristalis scutellaris* Fabr.**

Numerous specimens from Chapada and Rio de Janeiro. In one female specimen only, are there yellow spots on the second segment of the abdomen. *Doliosyrphus Rileyi* Will. is the same, as I suspected.

**66. *Eristalis conicus* Fabr.**

Twelve specimens, Rio de Janeiro and Chapada. Is closely allied to *scutellaris*, but will be distinguished in the female by the front being broad above, by the tibiæ, especially the hind pair, being lighter colored, by the median opaque stripe of the second abdominal segment not reaching the posterior band, by the smaller size, etc. The males differ, besides in the facial profile, in the antennæ being longer than in *scutellaris*. The margins of the scutellum are beset with short, dense, velvety black pile; the yellow spots of the abdomen are smaller, the hind femora larger, etc.

**67. *Eristalis precipuus* n. sp.**

♂.—Length 12–13 mm. Allied to *E. scutellaris* and *conicus*, but easily distinguished by the red legs. Face thickly covered with white pile and pollen, leaving a shining median stripe and the cheeks narrowly shining black. Antennæ reddish brown, the basal joints and the arista more reddish. Frontal triangle shining black, with black pile. Eyes briefly pilose above. Mesonotum, in front, ochraceous gray, separated by a crescentic opaque black band from the presutural opaque gray band; behind the suture an opaque black band, in front of a broader, shining steel-blue band. Pleuræ largely silvery gray pollinose; some yellowish pile in front of the root of the wings. Scutellum opaque light yellow, with the base narrowly opaque black. Abdomen opaque black, second segment with two large quadrate yellow spots, leaving a rather broad median stripe and a posterior band; third segment with a large yellow spot on each side, narrowly connected on the front margin; fourth segment with an entire steel-blue shining cross-band; hypopygium shining steel-blue; second, third and fourth segments each with a narrow posterior yellow margin. Legs yellowish, sometimes brownish, red, the tarsi brown; hind femora considerably thickened. Wings grayish hyaline, often lightly tinged with brownish exteriorly.

♀.—Front shining black, at the vertex steel-blue, with black pile; an opaque band below the ocelli and the orbits below narrowly whitish pollinose. Spots of the second abdominal segment sometimes largely shining blue; third and fourth segments shining metallic blue with a posterior opaque band.

Fourteen specimens, Chapada. The antennæ are sometimes reddish or blackish, but never light colored.

**68. *Eristalis vinetorum* Fabr.**

Five specimens, Rio de Janeiro and Corumbá.

**69. *Eristalis nigripes* Wied.**

Six specimens, Rio de Janeiro, Corumbá and Uarcarizal. Is easily recognizable from Wiedemann's description.

**70. *Eristalis agrorum* Wied.**

Fifteen specimens (Chapada), as large and more elongate than *vinetorum*, I cannot identify with certainty. The antennæ are not "ocherbraunlichschwarz," but red, or brownish red. The fourth and fifth abdominal segments have no yellow spots whatever. Wiedemann's description, moreover, applies to the male only, though both sexes are given in his diagnosis. In the male, the spots of the second and third segments are very large, quadrate, with a very slender posterior brownish band on the second segment, and a narrow one on the third. Otherwise the description applies pretty well to our specimens.

**71. *Eristalis volaticus* n. sp.**

♂.—Length 10–11 mm. Face densely, nearly white pollinose; median stripe and cheeks shining black. Antennæ brownish yellow, the first two joints black-

ish. Frontal triangle shining black, with black pile. Mesonotum with opaque black bands, the anterior margin and presutural band ashy, the posterior band moderately shining bluish; the post-alar callosities, the hind margin of the mesonotum, and the scutellum, except a small yellow spot at the tip, densely covered with short, deep black, velvety pile, wholly concealing the ground upon which it is inserted. Abdomen: first segment black; second segment light yellow with a median black stripe not quite reaching the hind margin; third segment yellow with a median stripe, as though a interrupted continuation of that on the second, connected with the narrow, sometimes partly obsolete band before the yellow hind margin, brown or blackish; fourth segment shining, somewhat metallic, black, with a median spot in front and a narrow band before the yellow hind margin, opaque black; in shape the segment is nearly square and flattened, cylindrical; hypopygium shining metallescent black. Venter, except the fourth segment almost wholly light yellow. Legs black; the base of the tibiæ and tarsi reddish, the hind femora chiefly dark red; hind tarsi with fulvous pubescence below; hind femora much thickened. Wings largely tinged with brownish, especially along the stouter veins.

Five specimens, Chapada, Corumbá and Rio de Janeiro.

72. **Eristalis podagra** Macquart, ♀.

*E. surinamensis* Macquart, ♂.

*E. bifasciatus* Macquart, ♂.

Eighteen specimens from Rio de Janeiro and Chapada. The eyes are pilose. Macquart describes them as bare in *E. podagra* and *surinamensis*, but as that mistake was not an infrequent one with him the discrepancy is of no importance. All three of these descriptions apply well otherwise; *E. surinamensis* is, however, placed under the group with the "cuisses posteriores greles," which may make the synonymy somewhat doubtful. The femora in both sexes are distinctly, though not greatly, thickened.

73. **Eristalis tænia** Wied. ? *E. annulipes* Macq.

Numerous specimens from Rio de Janeiro, Corumbá and Uaricazal. With Schiner's description of the thorax the determination seems pretty certain, but there is a considerable variation in the color of the legs, the four anterior ones often having considerable black. The hind femora are only a little thickened. I believe Macquart's species to be the same.

74. **Eristalis** sp.

Four male specimens from Rio de Janeiro and Chapada resemble *tænia* closely, but seem distinct in the black pile of the frontal triangle, and in the broadly interrupted presutural band.



**75. *Eristalis rufiventris* Macq.**

A number of specimens from Chapada agree very well with Macquart's description, but positive determination is hazardous in the absence of Columbian specimens. Some of the males have a quadrate black spot on the third abdominal segment. The female has two spots of the second segment not attaining the hind margin, and the two following segments each with an opaque posterior band and metallic in front, the third with an anterior opaque spot; in some there is red on the third segment. The facial stripe is rarely black.

**76. *Eristalis schistaceus* n. sp.**

♀.—Length 9 mm. Face densely yellowish white pollinose, leaving the median stripe and the cheeks shining black. Front on the sides yellowish pollinose, immediately above the antennæ with a shining black spot, connected by a linear stripe with an opaque band above; immediately below the antennæ a narrow yellow pollinose band. Antennæ reddish brown. Mesonotum opaque ashy gray, slightly yellowish, with a narrow band a little before the suture, and another of equal width throughout behind, both interrupted by a line, opaque black; the second band is straight in the middle, making on each side an angle to curve forward and outward to the root of the wing. Scutellum light waxy yellow, its narrow base and the lateral margin opaque black. Pleuræ thickly whitish pollinose, with white and yellowish pile. Abdomen: second segment opaque black, with a large pruinose metallescent spot on each side, leaving a posterior and a median stripe, and contiguous with the front border outwardly only; third segment with an opaque black posterior band and a median anterior spot, a shining band across the middle, and on the front, laterally, pruinose like the spots of the second segment; fourth segment opaque black, with a shining cross-band; second, third and fourth segments each with a narrow yellow hind margin. Legs black; tibiæ at the base narrowly yellowish. Wings nearly pure hyaline. Hind femora thickened.

One specimen, Chapada.

**77. *Eristalis parvulus* n. sp.**

♀. Length 7 mm. Face black, thickly ashy pollinose, leaving a rather broad stripe and the cheeks shining black. Antennæ reddish brown. Vertex opaque black, a narrow ochraceous band in front of the ocelli and behind a broader opaque black band or spot, that is continued in a slender stripe to the shining black above the base of the antennæ; the sides of the front below the opaque spot yellowish pollinose. Mesonotum opaque yellowish ashy gray, leaving a median stripe gradually attenuated to a point anteriorly, a small spot in front of the inner end of the suture, and a large triangular spot behind the suture, extending to the scutellum posteriorly and outwardly along the suture to the margin, all opaque black. Scutellum at the sides metallic black, on its base above opaque black, leaving a rounded yellow spot above on the apical part. Pleuræ black, moderately shining. Abdomen opaque black; second segment with a triangle on each side, and the three following segments each with an entire band, metallic

black. Legs black, their pile short, white; the knees and more or less of the base of the tibiae reddish; hind femora much thickened. Wings hyaline, a small stigmatic spot.

One specimen, Chapada.

78. **Eristalis albifrons** Wiedemann; Roeder, Stett. Ent. Zeit. 1865, 340.—

Brazil, Porto Rico.

*Eristalis albiceps* Macquart, Dipt. Exot. ii. 2, 56, 41; Williston, Synopsis N. A. Syrphidæ, 172.

*Eristalis seniculus* Loew, Centur. vi. 63.

One specimen, ♂, Rio de Janeiro.

79. **Pteroptila milesoides** Bigot.

Three specimens, Chapada. The description leaves no doubt of the identity.

80. **Pteroptila simplex** Schiner, Nov. Exped. 365.

Six specimens from Chapada agree essentially with the description. The third joint of the antennæ is sometimes red, and the hind femora below are more or less red. The species is closely allied in appearance and structure with the following, but will be at once distinguished by the slender median dorsal stripe being gray, not composed of yellow tomentum like the other markings of the dorsum; by the much less thickened, almost wholly black hind femora, etc.

81. **Pteroptila æmula** n. sp.

♂.—Length 15 mm. Eyes bare, narrowly contiguous; frontal and vertical triangles black, the former white pubescent on the orbital margin. Face thickly whitish pollinose, a broad median stripe and the cheeks, shining black. Antennæ brownish black, the arista luteous; third joint oval, not transverse. Posterior orbits densely light yellow pollinose. Thorax black, but very little shining; the mesonotum with a slender median stripe and the narrow posterior margin, a slender strigula on each side on the suture (not quite reaching the median stripe) and a slender oblique spot on each side behind the humeri, all opaque yellow tomentose. Pleuræ with a slender whitish pollinose vertical stripe. Abdomen opaque black; third and fourth segments opaque reddish yellow, due to short, dense, recumbent pile; third segment with a broad, bare, black, median band; third with the narrow front margin, and a slender transverse band of the same black; hypopygium densely yellowish pollinose. Legs black, the distal half of hind femora, and the hind tibiae, except their tip, reddish yellow; all the tarsi brownish red; all the femora swollen, the hind pair extraordinarily so on the proximal two-thirds. Wings nearly hyaline behind, brown or brownish along the front margin; sixth vein strongly sinuous.

Two specimens, Chapada.

**HABROMYIA** gen. nov.

Allied to *Mallota*, but the body elongate and bare. Front of the male narrow above, the eyes separated by the ocelli. Eyes bare. Front of female narrowed above. Antennæ situated on a prominent convexity, near the middle of the eyes in profile; short, the third joint oval, not transverse; arista bare. Face convex in profile below the antennal protuberance. Head much broader than the thorax. Abdomen elongate, scarcely as broad as the thorax, the sides of the first three segments nearly parallel, thence tapering in both sexes to a point. Legs rather slender, the hind femora elongate and a little thickened, and with short bristles below distally. Wings as in *Mallota*, the curvature of the third vein short and deep.

The genus is intermediate between *Mallota* and *Xylota*, and apparently will include *Mallota xylotæformis* Schiner. In shape, the abdomen cannot be very different from that of *Mallota cristatoides*, but the antennæ and bareness throughout seem sufficient to separate the genus.

82. **Habromyia cœruleithorax** n. sp.

♂ ♀.—Length 12—14 mm. Head black; face on the sides narrowly and thinly white dusted, the front in both sexes with a narrow pollinose orbital margin and across the middle; tip of the frontal process above reddish yellow. Antennæ brownish red, the arista brownish yellow. Dorsum of thorax deep shining metallic blue; finely punctulate, very nearly bare; in front in the middle with the beginning of two deep opaque stripes, separated by a line, and a spot of similar color over each humerus. Abdomen opaque bluish black, the first segment somewhat shining reddish; the following segments when seen obliquely, with a dense sericeous yellowish pubescence. Legs blackish brown, the base of the four anterior femora reddish yellow, the middle tarsi brownish red. Wings hyaline on the posterior part, deep brown in front; the brown borders the fifth vein behind to the base of the last posterior cell, and extends thence to the posterior angle of the first posterior cell, filling out this cell, except an oval sinus in front of the last section of the fourth vein.

Two specimens, Chapada. The male abdomen is shaped nearly as in the female, the hypopygial segment forming an apparently additional one, the sexual organs showing as an oval intercalated body below, some distance before the tip. The convexity of the third vein has a stump of a vein projecting into the first posterior cell in the female, not in the male. Whether it is a sexual or individual character it is impossible to say.

83. **Xylota genuina** n. sp.

♀.—Length 12 mm. Black, without yellow markings. Third antennal joint elongate oval, reddish brown, the intermediate ground upon which the an-

tennæ are inserted is luteous yellow. Face in profile vertical, and straight from the root of the antennæ to the oral margin, obtusely keeled, on either side with a patch of silvery gray dust. Front opaque on the upper part, yellowish dusted across the middle. Mesonotum opaque, an intra-humeral, and a slender, interrupted sutural band, yellow pollinose. Scutellum thinned at the tip, and with eight or ten small, but distinct, spinous bristles on its margin. Abdomen opaque; first segment, lateral margins of the second, anterior angles of the third, and the fourth wholly, moderately shining greenish metallic. Hind femora moderately thickened, with numerous spines below, and a patch of short silvery pile in front toward the base; hind coxæ with a small, acute, spinous tubercle. Wings tinged with brownish, more strongly distally in front, the stigma elongate brown; third vein gently curved backward.

One specimen, Rio de Janeiro.

84. **Syritta americana** Schiner.

Three male and one female specimens from Rio de Janeiro and Chapada are probably this, but the males differ from the description in having a broad, narrowly interrupted, yellow abdominal band; the first three joints of the four anterior, not the hind, tarsi are very light yellow, and the marginal cell of the wings from beyond the auxiliary vein is filled out with deep brown. The known variations in *S. pipiens* are such that I would not consider these differences (Schiner may have overlooked the brown marginal cell) specific, without further proof. The female differs in having no yellow on the abdomen, the opaque second and third segments showing shining metallic places to correspond to them; my single female also has a shining black spot above the oral margin. The third antennal joint is fully twice as long as the first two together.

85. **Sterphus cœrulus** Rondani (*Xylota*).

*S. antennalis* Philippi.

I will notice here a specimen of this species kindly sent me by Mr. Roeder, who called my attention to the above synonymy, which I can corroborate. The male hind coxæ have a long slender spur beneath. The specimen is from Chili.

**CERIOGASTER** gen. nov.

Allied to *Xylota*, the face carinate and the abdomen much contracted on the basal segments. Head flattened; face short, in profile gently convex. First two joints of the antennæ short, third elongate oval. Eyes bare, subcontiguous in the male, in the female the front narrowed above. Antennæ inserted near the middle of the

eyes in profile. Scutellum small, somewhat thinned. Abdomen contracted on the basal segments, the greatest width attained on the fourth; convex transversely. Hind femora much thickened in both sexes, with bristly spines below; front tarsi elongate and flattened in both sexes. Wings folded in repose; neuration as in *Xylota*; anterior cross-vein oblique, joining the fourth vein a little before the middle of the discal cell.

In addition to the species described below, the genus will probably include *Xylota coarctata* Wied.

#### 86. *Ceriogaster foscithorax* n. sp.

♂ ♀.—Length 7—8 mm. Face, frontal triangle, and vertical triangle (except the ocelligerous tubercle) with a golden sheen; a median stripe and a stripe on the cheeks shining black; in the female the pollen of face and front is of a lighter color, with a narrow opaque band on the upper part of the front. Antennæ yellowish brown. Thorax opaque black; mesonotum with two narrow, golden opaque bands, one toward the front margin, the other on the suture, and both interrupted in the middle; a small narrow spot of the same color on the posterior margin of the mesonotum. Scutellum opaque black, the margin more or less metallic. Abdomen moderately shining black; the fourth segment bright brassy metallic, thickly clothed with short golden pile; in the female the first segment on the sides, and the third, except a large triangular spot behind, metallic green, the black opaque, and the second segment in front with two reddish spots. Legs: femora mostly black, the four hind tibiæ and tarsi deep red or pitchy; the front tibiæ distally and front tarsi deep opaque black. Wings clouded with blackish distally, the stigma deep brown.

Two specimens, Corumbá and Rio de Janeiro.

### CERIA.

#### TABLE OF SPECIES.

1. Antennal process as long as first joint of antennæ (red species with yellow markings).....**Lynchii** n. sp.  
Antennal process one-half or one-third as long as the first joint.... 2.
2. Second segment of abdomen long and slender, only a little dilated behind (black with yellow markings)..... 3.  
Second segment narrow in front, of nearly the full width of abdomen behind; not elongate..... 4.
3. Second joint of antennæ longer than the first, third short...**Sackenii** n. sp.  
Second joint shorter than the first; yellow stripes of face slender.  
**Mikii** n. sp.
4. Abdomen red throughout; thorax black..... **Brauerii** n. sp.  
Abdomen black, with or without bands..... 5.

5. Dorsum of thorax with conspicuous light yellow pollinose stripes; abdomen banded; middle tibiæ of male with a distal brush of hair.

**Roederii** n. sp.

Dorsum of thorax and the abdomen uniformly black.....6.

6. Middle male tibiæ with brush of hair on inner distal part; abdomen elongate ovate; face with two inconspicuous luteous stripes.....**barbipes** Loew.

Middle male tibiæ simple. ....7.

7. Face with four slender yellowish or whitish stripes; sides of metanotum with slender yellow stripe; wings in front deep brown, towards the end yellow.

**Wulpii** n. sp.

Face with two stripes, no metathoracic stripes, wings more uniform along the front border; second segment of abdomen more cylindrical, not so much dilated distally.....**Bigotii** n. sp.

87. **Ceria Lynchii** n. sp.

♂.—Length 15 mm. Face yellow, a median stripe, a vittula on each side, and a stripe from the lowest part of the eye to oral margin, ferruginous red; vertex reddish yellow, the lateral orbits golden pollinose; occiput in the middle broadly black. Frontal process long and slender, longer than the first joint of the antennæ, red. First joint of the antennæ black, a little longer than the second; second joint black, or brownish black, a little longer than the third; third wholly red; style elongate, slender, white. Mesonotum red; on the posterior half a very large triangle, its apex in front and with a slender brown streak in its middle, a stripe on each side from the suture to post-alar callosity, a triangular spot on each side in front of the suture, contiguous with a spot on the humeri, yellow; just above the supra-alar yellow stripe, an equal black one; on each side of the middle a golden pollinose stripe, reaching about as far as the apex of the posterior triangle. Pleuræ chiefly yellow, with four or five slender, vertical, blackish or brown stripes. Scutellum light yellow, the base very narrowly black; metanotum light yellowish gray pollinose. Abdomen not broad, deep ferruginous in color, the first segment with a posterior black band, the second more yellowish on the sides in front; the second segment is longer than the third, and about as long as the fourth, it is much contracted near the anterior end, but not cylindrical, its posterior side broad, nearly the full width of the abdomen. Legs yellowish red, the basal two-thirds of the femora black, but with reddish streaks. Wings brownish yellow along the front margin; the basal posterior part also tinged with the same color.

One specimen, Chapada, June. Dedicated to Dr. Enrique Lynch Arribáizaga, of Argentina.

88. **Ceria Sackenii** n. sp.

♂.—Length 14–15 mm. Face black, lightly dusted; a broad, somewhat triangular, stripe on each side, nearly confluent above with a large orbital spot and a spot on each side of the antennal process, confluent with the frontal orbital margin, yellow; cheeks black, shining behind, the posterior oral margin with a yellow spot. Vertex swollen, yellow; the posterior orbits golden yellow pollinose. Frontal process reddish yellow, or yellowish red, about half the length of the first antennal joint. Antennæ blackish brown; the first joint at base, the distal

part of second, and the third, deep red; second joint very distinctly longer (about a fifth) than the first, third joint not half the length of the second; arista slender, silvery white. Mesonotum brownish black, in the middle with a broad yellowish dusted stripe; the humeri, a spot at outer end of suture, continued as a narrow, interrupted, sutural, golden pollinose cross-band; a supra-alar vittula, and the scutellum, except a large transverse spot, all yellow. Pleuræ black, grayish pollinose; a vertical stripe on the mesopleuræ, nearly confluent with a sterno-pleural spot, yellow. Abdomen black, the sides and venter of the cylindrical portion of the second segment, its posterior margin and the posterior margin of the two following segments, yellow; fourth segment with a biarcuate yellowish pollinose cross-band; the second segment is nearly as long as the two following together, slender and cylindrical on the anterior two-thirds or more; the following segments form a broadly ovate mass. Legs yellow; the middle femora with a spot below, the hind femora with a broad ring, sometimes incomplete above, black; front and hind tarsi more reddish or brownish; hind tibiae with an incomplete brown ring opposite the femoral ring. Wings hyaline, with an equal brown margin in front.

Four specimens, Chapada, November. With these males there are five female specimens that seem to be of the same species, though differing somewhat in coloration. The yellow of the face is less in extent, the spots smaller; the antennæ are darker colored; the ocelli are situated on a more or less extended blackish spot; the mesonotum is black, wholly without the yellowish dusted stripe, the spots are smaller, the supra-alar vittula, when present, very slender; the legs have more black, etc.

Dedicated to Baron C. R. von Osten Sacken, of Heidelberg, the able dipterologist.

89. **Ceria Mikii** n. sp.

♂ ♀.—Length 10–12 mm. Allied to *Sackenii*. The frontal process is shorter, the first antennal joint longer, distinctly longer than the second, the third is a half or more of the length of the third. The yellow markings of the face consist of a slender, arcuate stripe on each side, not reaching the frontal process, and two small orbital spots, the upper one opposite the base of the frontal process, confluent, in the male, with a narrow frontal orbital margin. In the female the front is black, with distinct rugosities on each side. A yellow spot on each side of the ocelli on the occipital margin. Mesonotum deep black, with a small yellow humeral spot, and another at outer end of suture; no vestige of a yellow pollinose sutural band. Scutellum narrowly yellow at base and margin. Pleuræ with a slender stripe, and a very small spot below, yellow. The abdomen is, in structure and markings, similar to that of *Sackenii*; the dilated portion rather shorter and broader. The legs are blackish brown, with the narrow base of femora, the knees and middle tarsi yellow. Wings as in *C. Sackenii*.

Two specimens, Chapada, April, November.

Dedicated to the well-known dipterologist, Prof. Josef Mik, of Vienna.

**90. *Ceria Brauerii* n. sp.**

♀.—Length 18—19 mm. Face black, shining, a lightly dusted stripe on each side of the middle; a yellow stripe runs from near the middle of the facial orbit to the oral margin; oral emargination broad; an interrupted band below the ocelli, and a spot on the upper part of the facial orbit, opaque black. Ocellar callosity black, posterior orbits yellow pollinose. Frontal process slender, nearly black, the underside red; in length rather more than half of the first antennal joint. Antennæ slender, the second joint only very gradually widened; black, the style silvery; first joint a trifle longer than the second, the second longer than the third, style not elongate. Thorax black, the dorsum with a distinct yellowish pruinosity, less apparent in the middle behind and near the outer end of the suture; a small spot on the humeri, a smaller one at outer end of suture, the post-alar callosities and the narrow base and margin of the scutellum, red or yellowish. Pleuræ yellowish pruinose; a rather broad yellow stripe across the sides of metanotum; an indistinct slender reddish stripe on the mesopleuræ. Abdomen ferruginous red; second segment yellow at base, the fourth segment with an indistinct, yellowish pollinose, biarcuate, cross-band; in shape the abdomen is elongate, the third segment about square; the second segment is narrow at the immediate base, of nearly the full width of the abdomen behind, of nearly equal length with the third, shorter than the fourth. Legs brownish black, the base of all the femora red or yellow. Wings hyaline, brownish along the anterior part.

Three specimens, Chapada (March) and Santarem. The first segment of the abdomen may be blackish on the sides, and in life it is possible that the following segments may have a noticeable yellow hind margin.

Dedicated to the able entomologist, Prof. Friedrich Brauer, of Vienna.

**91. *Ceria Roederii* n. sp.**

♂.—Length 16 mm. Face and front black, shining, the narrow margin of frontal orbit, and a slender stripe from in front of the lower border of the eye, running to the oral margin, nearly white pollinose; on either side of the face, below the antennæ thinly grayish pollinose. Frontal process about one-third of the length of the first antennal joint. Antennæ slender, black; second joint only very gradually widened, about three-fourths the length of the first, and a fourth longer than the third; style very long and slender, cinereous. Vertex not strongly prominent; posterior orbits light yellow pollinose. Thorax black, the mesonotum but little shining, with two conspicuous, opaque, light yellow, pollinose stripes, blending with the base of a slender median triangle at the scutellar margin; a slender stripe on each side, nearly touching a narrow transverse spot from the previously mentioned stripes, and running to the post-alar callosity, of the same opaque yellow color. Pleuræ gray pollinose. Scutellum yellow, shining; metanotum light golden. Abdomen elongate, narrow, black, moderately shining; second segment yellow in front; second, third and fourth with a posterior yellow margin, and a median, narrow (very narrow on the second),



light yellow, opaque, pollinose cross band, interrupted in the middle by a slender line, that of the fourth segment is gently oblique on each side; second segment about as long as the third, very narrow in front, of nearly full width behind. Legs black; a small ring or spot at the base of the femora; middle tibiae on distal inner third or half with a tuft of yellowish brown hair, continued more yellow and shorter on the metatarsi. Wings nearly hyaline, yellowish and brownish clouded in front; the stigma and a narrow cloud on the distal section of the third vein brown.

One specimen, Chapada. This is the handsomest species of the genus that I have yet seen.

Dedicated to the well-known dipterologist, Mr. Victor von Roeder, of Hoym, Germany.

**92. *Ceria barbipes* Loew.**

♂ ♀.—Length 14 mm. In structure like *C. Roederii*, the style less elongate. Black, the thorax and abdomen without markings, except that the base of the second segment is reddish. Face with two inconspicuous yellowish or reddish stripes converging to the oral margin. Wings dark brown in front, lighter toward the tip. Abdomen with fine whitish, close-lying pubescence. Middle tibiae of the male with a brush of long yellowish brown hair on the distal half, continued somewhat on the metatarsi.

One male and two female specimens from Chapada (November) agree well with Loew's description. The female middle tibiae have no brush of hair at the end.

**93. *Ceria Wulpit* n. sp.**

♂ ♀.—Length 12—14 mm. Black, scarcely shining. Face and front shining, the former lightly dusted below the antennae, and with four slender or luteous stripes, the one each side from near the middle, gently converging to the oral margin, the other, from the lower border of the eye to the oral margin. Frontal process black, or reddish black, less than half the length of the first antennal joint. Antennae black, the third joint dark brownish red; second joint distinctly shorter than the first, and a little (perhaps a fourth) longer than the third; style moderately elongate. Thorax deep black, not shining; a slender, transverse, yellow stripe on the sides of the metanotum, and the narrow base and margin of the scutellum. Abdomen deep black, not shining; second segment yellow at the narrow base, the following segments with fine yellow pubescence; second segment nearly the full width of abdomen behind, distinctly longer than the third. Legs black, the tibiae and tarsi sometimes perceptibly reddish. Wings nearly hyaline on the posterior part, along anterior part on basal half deep brown, on distal part yellow, on basal posterior portion strongly tinged with brownish.

One male and six female specimens, Chapada (January, November) and Rio de Janeiro (November). The female of this species will be distinguished from the female of *barbipes* by the additional stripe of the face, the yellow of the distal anterior portion of the

wings, by the shorter, more broadly oval, distal portion of the abdomen, which in all the specimens forms a strong angle with the second segment, directed downwards, etc.

Dedicated to the dipterologist, Mr. F. R. v. d. Wulp, of Hague, Holland.

94. **Ceria Bigotii** n. sp.

♂ ♀.—Length 10—11 mm. Closely allied to *C. barbipes*, but is smaller, the style of antennæ is shorter, the abdomen is much more contracted on the second segment, and less expanded distally, the distal portion is more shining and not noticeably with pubescent, and the male wholly lacks the brush of hairs on the middle tibiæ.

Two specimens, Chapada. The simple middle tibiæ will at once distinguish the male of this species from that of *C. barbipes*. In the female of *C. barbipes* the second segment of the abdomen has three sides straight and of nearly equal width, with a short cylindrical stem; in *C. Bigotii* the cylindrical portion forms nearly half the length of the segment, and its posterior side is distinctly less in width than that of the next segment. The antennal styles in the female do not differ much. The legs in my specimens are deeply tinged with red.

Dedicated to Mr. J. F. M. Bigot, of Paris.

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*Additions to the Catalogue of South American Syrphidæ,*  
*Trans. Amer. Ent. Soc. xiii, 308–324.*

**Microdon cyaneus** Perty, Delectus, etc.—Brazil.

**fulgens** Wiedemann, Auss. Zw. Ins. ii. 82; Williston, Synopsis N. A. Syrphidæ, 11; Macquart, Dipt. Exot. 1er Suppl. 122.—N. and S. America.

**Syrphus albitarsi, excavatus, albiventris** Rondani, Dipt. Osculati—S. America.

**octoguttatus** Jaennicke, Neue Exot. Dipt. 90.—Chili.

**similis** Blanchard, Gay's Hist. fis. y pol. de Chile, vii. 410; Philippi, Verh. Zool. Bot. Gesellsch. xv. 745.—S. America.

**albomaculatus** Smith, Proc. Zool. Soc. Lond. 1877, 84.—Galapagos.

**agonis** Walker, List, etc., iii. 538.—Galapagos.

**splendens** Thomson, Eugenes Resa, 501.—Galapagos.

**Temnocera metallorum, fulvolucus**, Walker, Dipt. Saunders, 252.—Brazil.

**Eristalis decorus** Perty, Delectus, etc.—Brazil.

**inversus** Wiedemann, Auss. Zwei. Ins. ii. 161.—Surinam.

**fuscipennis** Macquart, Dipt. Exot. 1er Suppl. 128, pl. xi. fig. 5.—Surinam.

**pygmæus** Macquart, Dipt. Exot. ii. 2, 54.—Surinam.

**funescens** Rondani, Dipt. Osculati, 4.—Rio Negro.

**Helophilus chilensis** Guerin, Iconogr. 545, pl. xcix. fig. 2.—Chili.

**Dolichogyna fasciata** Macq.

**Helophilus Hahni** Bigot, Mis. Sc. Cap. Horn, Dipt. vi. Dv. 24, pl. iii,  
fig. 6.

